GENERAL SURGERY
Questions&Answers

Q-1

A 14 year old boy was brought to the hospital by his parents because of a painful swelling located in his neck. Physical examination revealed that the swelling is located in the midline of his neck below the hyoid bone just in front of the trachea. It was also established that the mass is a palpable non-tender mobile fluid filled lump that moves upwards on swallowing and on protrusion of the tongue. It was measured to be about 1.5 cm in diameter. After a thorough history and physical examination had been performed, the patient was suspected to have a thyroglossal cyst. What is the SINGLE most appropriate investigation to perform?

ANSWER:
Ultrasound of the neck

EXPLANATION:
A thyroglossal cyst is a fibroid cyst that forms from a persistent thyroglossal duct. It usually presents as an asymptomatic fluid-filled midline neck mass below the level of the hyoid bone. It is benign and results from an incomplete closure of the thyroid's migration path during fetal development.

It typically presents as a painless anterior midline neck mass and is found most often in childhood or adolescence. This is a very important point to remember. Thyroglossal cyst accounts for around 75% of midline masses in children.

Thyroglossal cysts are congenital, however, the diagnosis can be made at any age with most of them diagnosed before 10 years of age.

How do you diagnose a thyroglossal cyst?

Ultrasound of the cyst is a sensible next step and is performed to distinguish a solid cyst from fluid-filled components and to visualize the degree of the mass as well as its surrounding tissues. It is the first line imaging study and ultrasound alone can be sufficient to conform the diagnosis in majority of cases.

MRI or CT are used when malignancy is suspected but are not used routinely unless there is a large cyst.

Thyroid scan with technitium 99m(Tc-99m) can be used to determine if there are any ectopic thyroid tissue. Remember, the wall of a thyroglossal duct cyst is the second most common site for ectopic thyroid tissue.

Fine needle aspiration cytology is performed in order to establish the character of the cells inside the cyst. However, given the low incidence of carcinoma in thyroid cyst especially in children, preoperative biopsy of thyroglossal cyst is not cost effective and is not recommended.

Diagnostic steps always move from least invasive to most invasive. In majority of questions, the most appropriate investigation would be the gold standard diagnostic step which normally involves a biopsy. This is not the case for thyroglossal cyst. Ultrasound still remains the most appropriate investigation here.

Q-2

A 60 year old man has right upper quadrant discomfort. He has lost 10 kg in the last 4months. On examination, a palpable liver with nodularities was found. Three years ago,he had a right hemicolectomy for a colorectal cancer. What is the SINGLE mostappropriate tumour marker to investigate?

A. CA 125
B. CA 15-3
C. CA 19-9
D. Carcinoembryonic antigen (CEA)
E. Alpha-fetoprotein (AFP)

ANSWER:
. Carcinoembryonic antigen (CEA)

EXPLANATION:
Carcinoembryonic antigen (CEA) is especially important to monitor response totreatment and identify relapse in tumours showing raised CEA at diagnosis (e.g.colorectal cancers)

The history of the right upper quadrant discomfort and the examinations of a palpableliver are descriptions of tumour metastasis to the liver. CEA raises with a metastatictumours from colon whereas alpha-fetoprotein (AFP) is elevated in primary hepatocellular carcinoma. So do not get confused and pick AFP where there is a clearhistory of colorectal carcinoma.

Common tumour markers

Tumour marker	Association

CA 125	Ovarian cancer
CA 19-9	Pancreatic cancer
CA 15-3	Breast cancer
Prostate specific antigen (PSA)	Prostatic carcinoma
Carcinoembryonic antigen (CEA)	Colorectal cancer
Alpha-fetoprotein (AFP)	Hepatocellular carcinoma, teratoma

Q-3

A 35 year old woman presents to her GP's office with the complaint of a lump in her left breast. She first noticed the mass two weeks ago in the shower and the patient says that she has not noticed whether the mass appears and disappears with the occurrence of her menses. The patient's past medical history was insignificant and she claims that she is on no long term medication. Further questioning reveals that the patient has no further complaints of night sweats, weight loss or a fever and this is the first breast mass that she has noticed. She has no family history of breast cancer. On physical examination, it was revealed that a 2.5 cm by 1.5 cm mass is present in the left lower quadrant of her left breast. The mass was regular and firm in consistency and was non-tender and mobile. The skin over her left nipple appeared to be normal and no discharge from her left nipple could be appreciated. The rest of the breast examination was unremarkable with no enlarged lymph nodes palpated in her neck or axillary region. Examination of her right breast was unremarkable. Fine needle aspiration cytology (FNAC) was subsequently done. The results show duct-like epithelium surrounded by fibrous bridging. What is the SINGLE most likely diagnosis?

A. **Fibroadenoma**
B. **Firboadenosis**
C. **Breast cancer**
D. **Fat necrosis**
E. **Sclerosing adenosis**

ANSWER:
Fibroadenoma

EXPLANATION:
Fibroadenomas are the most common type of breast lesion in young women. Although this women is not very young, based on her past medical history, family history and examination results, a fibroadenoma is the single most likely diagnosis for her.

Fibroadenomas arise in breast lobules and are composed of fibrous and epithelial tissue. They present as firm, nontender and highly mobile masses. The woman in this scenario has the classical picture of a fibroadenoma.

Fibroadenosis is less likely because the hallmark of these lumps is that the lump appears just before menstrual periods and disappears afterwards. Also, the biopsy of fibroadenosis reveals fibrosis, adenosis, epitheliosis and cyst formation. The usual presentation of fibroadenosis is a breast lump or pain in the breast.

Breast carcinoma is the most common cause of a breast mass in postmenopausal patients. In malignancy, there is an abundant pure population of tumour cells, singly and in clusters.

Q-4

A 32 year old man is about to undergo an elective inguinal hernia surgery. His blood tests show:

Haemoglobin 82 g/L
Mean cell volume 70 fL
White cell count 5 x 10^9/L
Platelets 180 x 10^9/L

What is the SINGLE most appropriate next action?

A. **Investigate and postpone surgery**
B. **Blood transfusion and proceed with surgery**
C. **Blood transfusion and defer surgery**
D. **Continue with surgery with 2 units cross matched blood on stand by**
E. **Platelet transfusion and proceed with surgery**

ANSWER:
Investigate and postpone the surgery

EXPLANATION:
For elective procedures, proceed only if the haemoglobin is above 100 g/L (10 g/dL). If haemoglobin is lower than that, defer the operation and investigate first. If haemoglobin was below 80 g/L (8 g/dL) and the patient was symptomatic, then transfuse with blood.

Q-5

A 62 year old man presents to the Emergency Department with acute onset of severe, persistent abdominal pain. The pain started two hours ago. On examination, his abdomen is distended and has generalised tenderness. There is no bowel sounds on auscultation. He has a heart rate of 110 beats/minute and a blood pressure ofr 100/60 mmHg. A venous blood gas was performed which shows a lactate of 6.4. An ECG taken shows evidence of atrial fibrillation. Analgesia, intravenous fluids and broad spectrum antibiotics were stated. What is the SINGLe most likely diagnosis?

A. **Ulcerative colitis**
B. **Crohn's disease**

C. Ischaemic colitis
D. Acute mesenteric ischaemia
E. Bowel perforation

ANSWER:
Acute mesenteric ischaemia

EXPLANATION:
In acute mesenteric ischaemia, VBG typically show a high lactate. If an ABG would have been performed, it would reveal severe metabolic acidosis with a high lactate.

Atrial fibrillation is the likely cause of the embolism that has caused the ischaemic even in the gut. We should have a high suspicion of embolization to the superior mesenteric artery with any patient with atrial fibrillation who complains of severe abdominal pain.

Please remember that ischaemic colitis is different from acute mesenteric ischaemia. Mesenteric ischaemia is acute with an abrupt cessation of blood supply to the gut whilst ischaemic colitis has a chronic presentation over hours which occurs due to a transient disruption of blood supply to the colon.

In the Emergency Department, if mesenteric ischaemia is suspected, resuscitation with oxygen and intravenous fluids should be commenced. Also administer intravenous analgesia and broad spectrum intravenous antibiotics. These patients need to be referred to the surgeons urgently.

Mesenteric ischaemia
Mesenteric ischaemia is the abrupt cessation of blood supply to a large portion of the bowels resulting to irreversible gangrene.

Usually occurs in the middle-aged or elderly patients.

Causes
- Mesenteric arterial embolism (seen in patients with atrial fibrillation)
- Decreased mesenteric arterial blood supply (seen in patients with hypertension secondary to myocardial ischaemia)

Clinical features
- Severe sudden onset of abdominal pain
- Severity of pain exceeds the physical signs
- Absent bowel sounds
- Abdominal distension and tenderness

MESENTERIC ISCHAEMIA VS ISCHAEMIC COLITIS

	Mesenteric ischaemia	**Ischaemic colitis**
Aetiology	Embolic (look for AF) – causing	Multifactorial – causing transient

	total loss of blood supply to one segment of bowel	interruption of blood supply
Clinical features	Sudden onset Abdominal pain is disproportionate to clinical findings	Onset gradually – over hours Pain usually starts at left iliac fossa Moderate colicky abdominal pain and tenderness with blood diarrhoea
Management	Urgent sugery to remove or bypass obstruction. Removal of necrotic bowel may be required.	Conservative or surgical

Q-6

A 60 year old man presents with a lump in the left supraclavicular region. He complains of reduced appetite and he has lost 7 kg in the last two months. What is the SINGLE most probable diagnosis?

A. **Thyroid carcinoma**
B. **Gastric carcinoma**
C. **Bronchial carcinoma**
D. **Mesothelioma**
E. **Laryngeal carcinoma**

ANSWER:
Gastric carcinoma

EXPLANATION:
The lump at the left supraclavicular region known as Troisier's sign (an enlarged left supraclavicular node – Virchow's node), it is indicative of gastric cancer.

Q-7

A 44 year old woman had a total abdominal hysterectomy and bilateral salpingo-oophorectomy 5 days ago. She now has increasing abdominal discomfort and is now bloating. She was encouraged to stay well hydrated but she is still unable to pass gas. No bowel sounds are heard. What is the SINGLE most appropriate next step?

A. **X-ray abdomen**
B. **Exploratory laparoscopy**
C. **CT abdomen**
D. **Ultrasound abdomen**
E. **Barium enema**

ANSWER:
X-ray abdomen

EXPLANATION:
The likely diagnosis here is paralytic ileus and an x-ray can help with diagnosis.

Prolonged surgery is one of the major causes of paralytic ileus and it occurs due to overhandling of the bowel.

Paralytic ileus is to be expected in the first few days after abdominal surgery. Bowel sounds are absent and there is no passage of gas. There may be mild distension, but there is usually minimal pain.

PARALYTIC ILEUS

Clinical features
• Abdominal distension, tympanic or dull on percussion.
• Abdominal X-ray → Shows air/fluid-filled loops of small and/or large bowel
• Intestinal ileus usually settles with appropriate treatment.

Treatment
• Pass an NGT to empty the stomach of fluid and gas if the patient is nauseatedor vomiting. Small volumes of tolerated oral intake may help mild ileus toresolve.
• Ensure adequate hydration by IV infusion (‘drip and suck’).
• Reduce opiate analgesia and encourage the patient to mobilize.

Q-8

A 60 year old woman has lower abdominal discomfort and mild abdominal distension. On pelvic examination, a nontender, solid irregular right adnexal mass is felt. Her Pap smear done a year ago was normal. What is the SINGLE most appropriate tumour marker to request for?

A. CA 125
B. CA 15-3
C. CA 19-9
D. Carcinoembryonic antigen (CEA)
E. Alpha-fetoprotein (AFP)

ANSWER:
CA 125

EXPLANATION:
A pelvic mass that is identified after menopause should raise the suspicion of ovarian cancer. Remember that in postmenopausal women, the ovaries should normally be atrophic so if they are felt, think of ovarian carcinoma.

Among the above options, CA 125 should be taken for the possibility of an ovarian epithelial cancer.

Q-9

A 39 year old woman has been having tingling and numbness of her thumb, index and middle fingers for a while. She has been treated with local steroids but there was no improvement. She has planned to undergo a surgical procedure. What is the SINGLE most likely structure to be incised?

- **A. Flexor digitorum profundus**
- **B. Transverse carpal ligament**
- **C. Palmar aponeurosis**
- **D. Extensor retinaculum**
- **E. Antebrachial fascia**

ANSWER:
Transverse carpal ligament

EXPLANATION:
During open carpal tunnel release surgery, the transverse carpal ligament is cut, which releases pressure on the median nerve and relieves the symptoms of carpal tunnel syndrome.

Q-10

A 39 year old man has a painful palpable mass for the past 6 weeks near his anus. The pain is described as throbbing and worse when sitting down. On examination, the lump is warm, erythematous, and tender. He has a history of diabetes mellitus type 2. What is the SINGLE most likely diagnosis?

- **A. Anal fissure**
- **B. Perianal abscess**
- **C. Perianal haematoma**
- **D. Anogenital warts**
- **E. External haemorrhoids**

ANSWER:
Perianal abscess

EXPLANATION:
This is a very straightforward question. Although many of the options could be very well correct, the history of diabetes should point you towards an infective cause. Hence, perianal abscess is the answer. It is one of the common causes of anorectal pain. Perianal abscesses have a gradual onset, usually with a constant localized perianal pain. Throbbing and severe are good ways to describe a perianal abscess especially if the patient describes the pain as worse when sitting down. Tenderness and swelling is common and occasionally with discharge. Other symptoms also include constipation or

pain associated with bowel movements.

Q-11

A 32 year old man has undergone an open appendectomy earlier today. In theatre, a gangrenous appendix was found. What is the SINGLE most appropriate pain relief to administer postoperatively?

A. Patient controlled analgesia with morphine
B. Oral tramadol
C. Oral morphine
D. Rectal diclofenac
E. Intramuscular morphine

ANSWER:
Patient controlled analgesia with morphine

EXPLANATION:
This is a case of an open surgery. Patient controlled analgesia with morphine would be the best to start off and this could be weaned off when the patient is in less pain.

Q-12

A 59 year old man presents to the Emergency Department with abdominal pain which started 18 hours ago. The pain had gradual onset which initially started at the left abdomen associated with nausea. His medical history includes heart failure, diabetes and hypertension. On examination, his abdomen has generalised tenderness. A digital rectal examination shows blood per rectum. He has a heart rate of 80 beats/minute, blood pressure of 150/80 mmHg and a temperature of 37.9 C. What is the SINGLE most likely diagnosis?

A. Bowel perforation
B. Rectal carcinoma
C. Ischaemic colitis
D. Acute mesenteric ischaemia
E. Angiodysplasia

ANSWER:
Ischaemic colitis

EXPLANATION:
Ischaemic colitis is caused by transient disruption of blood supply to the colon which leads to mucosal ulceration, inflammation and haemorrhage hence the PR bleeding in this stem. A low grade pyrexia, tachycardia and abdominal tenderness would also fit with symptoms of an ischaemic colitis.

The aetiology is often multifactorial involving either thrombotic events or hypoperfusion (such as shock, heart failure or a myocardial infarction). In this stem, heart failure was

the cause.

Please remember that ischaemic colitis is different from acute mesenteric ischaemia. Mesenteric ischaemia is acute with an abrupt cessation of blood supply to the gut whilst ischaemic colitis has a chronic presentation over hours which occurs due to a transient disruption of blood supply to the colon.

Q-13

A 48 year old man complains of rectal bleeding and loss of weight. He has a mass in left iliac fossa. What is the SINGLE most likely diagnosis?

- **A. Caecal carcinoma**
- **B. Carcinoma of sigmoid colon**
- **C. Carcinoma of transverse colon**
- **D. Ulcerative colitis**
- **E. Volvulus**

ANSWER:
Carcinoma of sigmoid colon

EXPLANATION:
The position of the mass in combination of the symptoms of change of bowel habit and weight loss can only be from a carcinoma of sigmoid colon.

Q-14

A 27 year old woman presents to Accident & Emergency with the complaint of right upper quadrant pain. She has no other complaints and is experiencing no other symptoms. Her past medical history is significant for gallstone disease as confirmed on ultrasound. Her last episode of biliary colic was three years ago, for which she received analgesia. Each episode of pain that she has presented with in the past has been managed successfully with morphine and has resolved completely after treatment with analgesia. Her medical notes show that the last ultrasound that she had shows an increased common bile duct diameter. What is the SINGLE best investigation to perform now for this patient?

- **A. ERCP (Endoscopic Retrograde Cholangiopancreatography)**
- **B. MRCP (Magnetic Resonance Cholangiopancreatography)**
- **C. Repeat ultrasound**
- **D. Laparoscopic cholecystectomy**
- **E. Dissolution of gallstones**

ANSWER:
Repeat ultrasound

EXPLANATION:

The fact that this patient already has confirmed gallstones seen on ultrasound with an increased common bile duct diameter means that it is highly likely that she is having a repeat episode of biliary colic or perhaps even cholangitis. The next best investigation would be to confirm the diagnosis on a repeat ultrasound.

ERCP is used primarily to diagnose and treat conditions of the bile ducts and main pancreatic duct. Newer modalities such as MRCP produce detailed images of the hepatobiliary and pancreatic systems. This means that ERCP is now rarely performed without therapeutic intent.

BILIARY COLIC
Occurs when a stone temporarily occludes the cystic duct. There is a colicky pain in theright upper quadrant radiating to right shoulder. The pain can also radiate to the back in the interscapular region. Nausea and vomiting are common which often accompanies the pain. The episode is usually self limiting.Ultrasound establishes diagnosis of gallstones.

Contrary to its name "Biliary colic", the pain usually does not fluctuate but instead is consistent and can last anywhere between 15 minutes up to 24 hours where the pain gradually subsides spontaneously or with the help of analgesia.

The main difference of biliary colic and acute cholecystitis is the inflammatorycomponent. In acute cholecystitis there is local peritonism, fever, and elevated WCC.

Management includes:
- Analgesia (usually opioids such as morphine)
- Rehydrate
- Nil by mouth.
- Elective laparoscopic cholecystectomy is usually indicated

Q-15

A 27 year old woman visits the general practitioner for a routine annual examination. She has had a lump in her breast for two years but has not sought any medical advice. The mass has remained the same size for the past two years. On examination, the mass is located on the right upper quadrant and it is felt as a firm 3 cm by 2 cm mass. It is nontender and mobile. What is the SINGLE most likely diagnosis?

A. Fat necrosis
B. Atypical hyperplasia
C. Phyllodes tumour
D. Cyclical mastalgia
E. Fibroadenoma

ANSWER:
Fibroadenoma

EXPLANATION:
Fibroadenomas
Fibroadenomas are the most common breast tumours found in adolescence and young women. Clinically, fibroadenomas are firm, nontender, highly mobile palpable lumps. It is important to remember that the most distinctive feature of fibroadenomas that distinguishes them from other breast lumps are the fact that they are highly mobile. In fact, some small lumps may slip away from the examining hand during palpation because they are extremely mobile, giving rise to their description “breast mice”.

Most fibroadenomas are found in the upper outer quadrant of the breast. They are thought to result from an increased sensitivity to oestrogen.

Diagnosis is usually made with a combination of clinical assessment, ultrasonography and fine needle aspiration cytology.

Q-16

A 58 year old lady with a medical history of type 1 diabetes mellitus has a tender lump near the anal opening which has been increasing in size for the last 3 weeks. She complains of constipation and throbbing pain when she sits down. She has a temperature of 38.1 C. The mass is seen to be swollen, erythematous and tender at the edge of the anus. What is the SINGLE most appropriate management?

A. **Incision, drainage and antibiotics**
B. **Intravenous antibiotics only**
C. **Rubber band ligation**
D. **Sclerotherapy**
E. **Glycerol suppositories**

ANSWER:
Incision, drainage and antibiotics

EXPLANATION:
This is a case of anorectal abscess. Diabetes, immunocompromised patients or patients with Crohn’s disease are likely candidates for an anorectal abscess. Fever and pain are typical for an anorectal abscess. The perianal pain is sometimes worse when sitting and can be associated with constipation.

Management would include surgical drainage. Antibiotic use is necessary if there is a history of diabetes or immunosuppression.

Q-17

A 29 year old woman presents with a single 2 cm by 2 cm lump in the breast. The lump is mobile and hard in consistency. On examination, the mass is painless and there is also palpable lymph node in the axilla. An ultrasound was performed which shows a mass with hypoechoic, ill-defined, spiculated and microlobulated margins. A mammogram shows ill-defined, spiculate borders. A fine needle aspiration cytology was performed which results came back as normal. What is the SINGLE most appropriate investigations to confirm the diagnosis?

A. **Repeat fine needle aspiration cytology**
B. **Magnetic resonance imaging**
C. **Punch biopsy**
D. **Genetic testing and counselling**
E. **Core biopsy**

ANSWER:
Core biopsy

EXPLANATION:
Breast fine needle aspirations are not 100% accurate. The lump is definitely suspicious.The most appropriate investigation to confirm the diagnosis is core biopsy. A core biopsyuses a hollow needle to take one or more samples of breast tissue from the area ofconcern. Because tissue is taken rather than cells, it gives more detailed information
compared to a fine needle aspiration.

A fine needle aspiration (FNA) involves taking one or more samples of breast cells usinga fine needle and syringe. The sample of fluid or cells is smeared on a glass slide and sentto a pathology laboratory to be examined. It is usually done under ultrasound guidanceor occasionally mammogram guidance. Fine needle aspirations only take a small amountof cells and thus they cannot be used to definitely rule out cancer as sometimes the cellsthat are taken may have arisen from normal tissue.

A punch biopsy may be done when there is a change to the skin of the breast or nipple.It involves taking a very small cylindrical piece of tissue from the changed area.

Q-18

A 31 year old woman has undergone a removal of a 4 cm breast lump on the upper outer quadrant of her left breast. The histology report states:

“A well circumscribed lump with clear margins and separate from the surrounding fatty tissue. There are overgrowths of fibrous and glandular tissue.”

What is the SINGLE most likely interpretation of this report?

A. **Fibroadenosis**
B. **Ductal carcinoma in situ**

C. **Cyclical mastalgia**
D. **Fibroadenoma**
E. **Fat necrosis**

ANSWER:
Fibroadenoma

EXPLANATION:
The histology findings are consistent with a fibroadenoma

Q-19

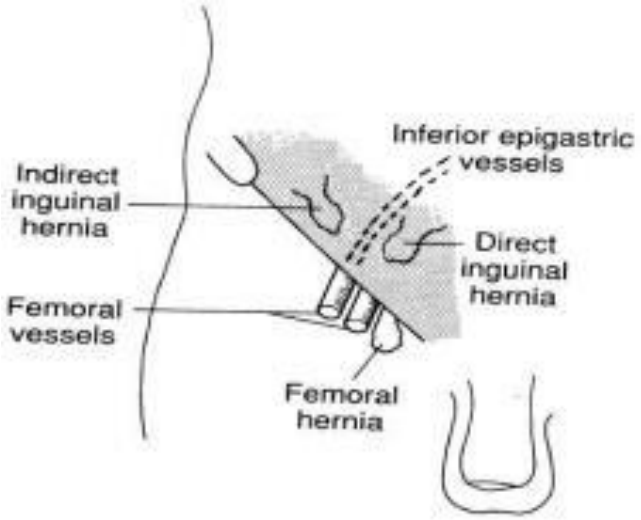
A 35 year old construction worker is diagnosed with indirect inguinal hernia. Which statement below best describes indirect inguinal hernias?

A. **Passes through the superficial ring only**
B. **Lies above and lateral to the pubic tubercle**
C. **Does not pass through the superficial inguinal ring**
D. **Passes through the deep inguinal ring**
E. **Passes medial to the inferior epigastric vessels**

ANSWER:
Passes through the deep inguinal ring

EXPLANATION:
Indirect inguinal hernias occur when abdominal contents protrude through the deep inguinal ring, lateral to the inferior epigastric vessels; this may be caused by failure of embryonic closure of the processus vaginalis. An indirect inguinal hernia like other inguinal hernias protrudes through the superficial inguinal ring. It is the most common cause of groin hernia.

In an indirect inguinal hernia, the protrusion passes through the deep inguinal ring and islocated lateral to the inferior epigastric artery.



Q-20

A 34 year old diabetic man has a positive family history for colon cancer. He is a smoker and smokes 8 cigarettes a day. He also consumes in excess of 30 units of alcohol per week. Due to the pressures of his job, he is only able to exercise once a month. Which of the following carries the SINGLE greatest risk for colon cancer?

A. Smoking
B. Family history
C. Sedentary lifestyle
D. Diabetes mellitus
E. High alcohol intake

ANSWER:
Family history

EXPLANATION:
Colorectal cancer is a multifactorial disease process. There are non-modifiable risk factors such as genetic factors, environmental exposures and inflammatory conditions of the digestive tract and there are modifiable risk factors such as diet, smoking, sedentary habits and increased alcohol intake.

Obesity, cigarette smoking, alcohol consumption, and sedentary habits have been associated with an increased risk for colorectal cancer. There is also an increased risk of colorectal cancer with a diet high in red meat and animal fat, low-fibre diets, and low overall intake of fruits and vegetables however, amongst the options, genetic factors have the greatest correlation to colorectal cancer with around 20% of bowel cancers associated with hereditary factors. Hereditary mutation of cancer causing genes such as in familial adenomatous polyposis, carry an increased risk of the development of colorectal carcinoma in which affected individuals carry an almost 100% risk of developing colon cancer by the age of 40 years.

The single greatest risk factor for colorectal cancers is age but that is not an option in this question.

RISK FACTORS OF COLORECTAL CANCER

- Age – Older age is the main risk factor for colorectal cancers
- Family history of colorectal neoplasia: carcinoma; adenoma under the age of 60 years
- Past history of colorectal neoplasm: carcinoma, adenoma
- Inflammatory bowel disease: ulcerative colitis, Crohn's colitis
- Polyposis syndromes: familial adenomatous polyposis (Gardner's syndrome), Turcot's syndrome, attenuated adenomatous polyposis coli, flat adenoma syndrome, hamartomatous polyposis syndromes (Peutz-Jeghers syndrome, juvenile polyposis syndrome, Cowden's syndrome)
- Hereditary non-polyposis colorectal cancer (HNPCC)
- Diet
  - Rich in meat and fat
  - Poor in fibre, folate and calcium
- Sedentary lifestyle
- Obesity
- Smoking
- High alcohol intake
- History of small bowel cancer, endometrial cancer, breast cancer or ovarian cancer

Q-21

A 49 year old lady had a colostomy closure 4 days ago. She now comes with fluctuating small swelling in the stoma. Her temperature is 37.9 C, respiratory rate is 18/min, pulse rate is 80 bpm. What is the SINGLE most appropriate management?

A. Local exploration
B. Exploratory laparotomy
C. CT abdomen
D. Ice packs
E. Analgesia and rest

ANSWER:
Local exploration

EXPLANATION:
Fluctuating small swelling indicates an abscess has formed. Local exploration would be beneficial in this scenario. Stomal abscess is a collection of pus (infection) occurring just under the skin around the site of the stoma. Antibiotics and drainage of the pus is sometimes required.

Q-22

A 49 year old female presents with right upper quadrant pain radiating to the right shoulder. An ultrasound establishes the diagnosis of gallstones. Her BP is 120/85 mmHg; respiratory rate 15/min; heart rate 85 bpm; Temperature 37.3 C; WBC 9 x 10^9/L. What is the SINGLE most appropriate management?

A. **Elective laparoscopic cholecystectomy**
B. **Reassure**
C. **Low fat diet**
D. **Ursodeoxycholic acid**
E. **Emergency laparotomy**

ANSWER:
Elective laparoscopic cholecystectomy

EXPLANATION:
As she is symptomatic, reassurance is out of the question. The two remaining options are elective laparoscopic cholecystectomy or emergency laparotomy. Laparoscopic cholecystectomy is the preferred option here as there are no signs of gallbladder perforation. Laparotomy has higher risk as it is much more invasive.

Q-23

A 31 year old previously healthy gym instructor was involved in a road traffic accident. He sustained an intracapsular fracture of his femur requiring an operation. A hemi-arthroplasty is performed and he is admitted to the orthopaedic ward. What is the most likely complication he can suffer from?

A. **Avascular necrosis of femoral head**
B. **Post-operative infection**
C. **Pulmonary embolism**
D. **Hypovolemic shock**
E. **Fat embolism**

ANSWER:
Post-operative infection

EXPLANATION:
The most common post-operative complication is an infection, including wound and lung infections (hospital-acquired pneumonia). The femoral head has been replaced (hemi-arthroplasty), therefore tehre is no risk of femoral head avascular necrosis. There is a risk of pulmonary embolism however now with early mobilisation and venous-thromboembolism prophylaxis, it is not the most common complication. A fat embolism is very rare.

Q-24

A 55 year old man has been admitted for an elective herniorrhaphy. Which among the following is the SINGLE most likely reason to postpone his surgery?

A. **History of asthma**
B. **BMI > 30**
C. **Deep venous thrombosis 2 years ago**
D. **Diastolic BP of 90 mmHg**
E. **Myocardial infarction 2 months ago**

ANSWER:
Myocardial infarction 2 months ago

EXPLANATION:
After a myocardial infarction, elective surgery should not be performed for the next 6 months as there is an increased risk of mortality for this specific group.

Q-25

What anatomical structure is pierced during a midline port insertion during a laparoscopic cholecystectomy?

A. **External iliac muscle**
B. **Linea alba**
C. **Rectus abdominis**
D. **Conjoined tendon**
E. **Intercostal muscles**

ANSWER:
Linea alba

EXPLANATION:
The linea alba is the correct answer here. As this is a midline port insertion, the linea alba is the main structure that would be pierced.

The exposure of the linea alba is usually performed by sharp dissection after which insertion of a trocar can be done.

Q-26

A 53 year old lady was sent for investigations including biopsy after being found to have a breast lump and associated changes to the skin overlying this lump that appeared red and dimpled. The biopsy result was suggestive of cancer. What is the SINGLE msot likely statement that would describe the histopathological findings?

A. **Invasive intraductal carcinoma of the breast extending to the epithelium**
B. **In situ carcinoma involving the nipple epidermis**

C. **Encapsulated adipocytes within a fibrotic stroma**
D. **Proliferation and expansion of the stroma with low cellularity**
E. **Cystic formations with mild epithelial hyperplasia in ducts**

ANSWER:
Invasive intraductal carcinoma of the breast extending to the epithelium

EXPLANATION:
The correct answer is A. Invasive intraductal carcinoma of the breast extending to the epithelium as this is a histopathological description of the most common type of breast cancer. Given that there is an indication this is cancer in the question stem and that the question is asking for the most likely statement to be correct, the most common form of cancer should be considered.

Option B. In situ carcinoma involving the nipple epidermis is incorrect as it describes Paget's disease of the breast which is one f the more rarer types of breast cancer affecting the nipple.

Option C. Encapsulated adipocytes within a fibrotic stroma is incorrect as it describes a Hamartoma which is a benign breast tissue disorder.

Option D. Proliferation and expansion of the stroma with low cellularity is incorrect. This describes the appearance of a fibroadenoma, which are benign cause of breast lumps.

Option E. Cystic formations with mild epithelial hyperplasia in ducts is incorrect. This describes nother type of benign breast tissue disease known as fibrocystic changes.

Q-27

A 31 year old woman has an injury to the right external branch of superior laryngeal nerve during a thyroid surgery. What is the SINGLE most likely symptom in this patient?

A. **Stridor**
B. **Hoarseness**
C. **Aphonia**
D. **Dysphonia**
E. **Aphasia**

ANSWER:
Dysphonia

EXPLANATION:
The two most important complications of nerve damages you would need to know during a thyroidectomy is:
1. Recurrent laryngeal nerve damage

2. Superior laryngeal nerve damage

A unilateral recurrent laryngeal nerve damage damage results in hoarseness and for bilateral damage symptoms include aphonia and airway obstruction.

The external branch of the superior laryngeal nerve is one of the nerves commonlyinjured in thyroid surgery. Injury to this nerve results in the inability to lengthen a vocalfold and, thus, inability to create a high-pitched sound (dysphonia). They would have amono toned voice. This would be detrimental to a person who is a a professional singer.So in this stem, injury to the external branch of superior laryngeal nerve is likely toproduce symptoms of dysphonia.

THYROIDECTOMY COMPLICATIONS

Hypocalcaemia

- Surgery can lead to trauma to the parathyroids, devascularization of the glands with resultant ischaemia, or removal of the glands during surgery. These would lead to decreased production of parathyroid hormones (hypoparathyrodism) which ultimately leads to decreased serum calcium
- Acute hypocalcaemia generally presents at 24-48 hours
- Postoperative hypoparathyrodism, and the resulting hypocalcaemia, may be permanent or transient.
- The first symptms are usually tingling in the lips and fingertips. Additional findings may develop, including carpopedal spasm, tetany, laryngospasm, seizures, QT prolongation and cardiac arrest. Chvostek's sign is facial contractions elicited by tapping the facial nerve in the pre-auricular area. Trousseau's sign is carpal spasm on inflation of a blood pressure cuff.

Airway obstruction (compressing haematoma, tracheomalacia)

- Acute airway obstruction from haematoma may occur immediately postoperatively and is the most frequent cause of airway obstruction in the first 24 hours
- Definitive therapy is opening the surgical incision to evacuate the haematoma
- Re-intubation may be lifesaving for persistent airway obstruction.

Superior laryngeal nerve damage

- The external branch of the superior laryngeal nerve is one of the nerves commonly injured in thyroid surgery
- Injury to this nerve results in the inability to lengthen a vocal fold and, thus, inability to create a high-pitched sound (dysphonia). They would have a mono toned voice. This would be detrimental to a person who is a professional singer.

Thyrotoxic storm

- Unusual complication resulting from manipulation of thyroid gland during surgery in patietns with hyperthyroidism
- Symptoms include: Tachycardia, tremors, cardiac arrhythmias

Wound infection

- Incidence is around 1 to 2%

Q-28

A 40 year old female underwent a laparotomy one week ago. On day 6 post-operatively, you are asked to review her by the nurse in charge. The patient complains that she has not been able to open her bowels since the operation and that she has vomited twice since yesterday. Her past medical history includes hypertension, diagnosed two years ago, for which she taeks ramipril. She has a twenty pack year smoking history. She does not drink alcohol at all. On examination, the patient appears to be anxious and uncomfortable. She is also noted to be overweight. She has a distended abdomen and no bowel sounds can be auscultated. There is no tenderness on palpation, apart from some mild discomfort around the laparotomy site. A plain X-ray of her abdomen revealed gas distributed throughout the small and large gut. Minor fluid levels were seen on an erect abdominal X-Ray. Her vitals are as follows:

Blood pressure 130/82 mmHg
Heart rate 90 beats/min

What is the SINGLE next best step to manage this patient?

A. **Immediate laparotomy**
B. **Nasogastric tube insertion and intravenous fluids**
C. **Observe for 48 hours**
D. **Administer laxatives**
E. **Conservative management with anti-muscarinic agents**

ANSWER:
Nasogastric tube insertion and intravenous fluids

EXPLANATION:
The patient in the scenario has presented with a common postoperative complications: paralytic ileus.

Paralytic ileus is a condition whereby the bowel takes a while to start working again after surgery. It can last for a few hours to a few days and may occasionally last much longer. It is more common after bowel surgery due to the manual handling of the bowel loops. This patient has a distended abdomen, produced mainly from swallowed air that cannot pass through the bowel. This impairs the blood supply of the bowel wall and allows the absorption of toxins to occur.

The fact that this ptient has no bowel sounds upon auscultation helps differentiate paralytic ileus from mechanical obstruction. A silent abdomen is more diagnostic of paralytic ileus, whereas noisy bowel sounds indicate a mechanical obstruction. Another differentiating point is the absence of pain in this patient. Paralytic ileus tends to have less abdominal pain compared to mechanical obstruction.

The best way to treat this patient is to pass a nasogastric tube to remove the swallowed air and prevent gaseous distension. Furthermore, intravenus fluid and electrolyte therapy should be administered with careful biochemical control.

An immediate laparotomy is not required as it is not an emergency and the patient is quite stable.

Q-29

A 60 year old man has difficulty in swallowing. He has regurgitation of food and bad breath. He has been coughing a lot lately. He has lost some weight during the last couple of months and is concerned about oesophageal cancer. What is the SINGLE most appropriate initial investigation?

A. Barium swallow
B. Computed tomography scan of chest
C. Manometry
D. Skeletal survey
E. Endoscopy

ANSWER:
Barium swallow

EXPLANATION:
The bad breath and regurgitation of food points towards a pharyngeal pouch. Loss ofweight can also occur in pharyngeal pouch. The first step in investigation would be abarium swallow and not an endoscopy. Performing an endoscopy in a patient with apharyngeal pouch could lead to a perforation.

Pharyngeal pouch (Zenker's diverticulum)
It is a herniation between the thyropharyngeus and cricopharyngeus muscles that are both part of the inferior constrictor of the pharynx.

Presentation
- Dysphagia
- History of food sticking and regurgitation
- Aspiration (Aspiration pneumonia can also occur)
- Chronic cough
- Some may present with progressive weight loss
- Usually there are no clinical signs but there may be a lump in the neck thatgurgles on palpation
- Halitosis (bad breath) from food decaying in the pouch.

Investigations
- Endoscopy should be avoided as an initial investigation for fear of perforatingthe lesion. A barium swallow may show a residual pool of contrast within thepouch.

Q-30

A 28 year old female presents to the breast clinic after having noticed a lump in the left breast which has been present for one month. On examination, there are 2 smooth, regular, firm, mobile lumps on the upper outer quadrant of the left breast. Both lumps are non-tender and measure 2 cm by 2 cm. Her last menstrual period was 2 weeks ago. What is the SINGLE most likely diagnosis?

A. **Sclerosing adenosis**
B. **Intraductal papilloma**
C. **Breast cancer**
D. **Cyclical mastalgia**
E. **Fibroadenoma**

ANSWER:
Fibroadenoma

EXPLANATION:
Please see Q-15

Q-31

A 62 year old lady with family history of ovarian carcinoma. A pelvis ultrasound reveals a complex mass that is 7 cm by 5 cm in the left adnexa. What is the SINGLE most appropriate tumour marker to request for?

A. **CA 125**
B. **CA 15-3**
C. **CA 19-9**
D. **Carcinoembryonic antigen (CEA)**
E. **Alpha-fetoprotein (AFP)**

ANSWER:
CA 125

EXPLANATION:
Please see Q-8

Q-32

A 35 year old lady presents with painless bleeding from her left nipple over the past 2 days. No mass can be palpated on the breast. There are skin changes of the breast. What is the SINGLE most likely diagnosis?

A. **Duct ectasia**
B. **Paget's disease**

C. **Ductal papilloma**
D. **Nipple abscess**
E. **Fat necrosis**

ANSWER:
Ductal papilloma

EXPLANATION:
Ductal papilloma is a benign breast condition and the most common cause of bloody nipple discharge in women age 20-40. A papilloma is a growth a bit like a wart. These can grow inside the ducts of the breast, often near to the nipple. They can bleed causing a bloody discharge from the nipple. The masses are often too small to be palpated. They do not show up on a mammogram due to their small size. A galactogram is therefore necessary to rule out the lesion.

The other optins are less likely to be the answer.

Duct Ectasia – is suggested by a green or brown nipple discharge

Paget's disease of nipple – is suggested by breast nipple 'eczema'

Nipple abscess – is suggested with a painful collection of pus forming in the breast tissue or around the nipple, usually as a result of bacterial infection

Fat necrosis is suggested by a firm and solitary localized lump usually with a history of trauma

Q-33

A 49 year old man had a sigmoid colectomy 48 hours ago. He is recovering well and has been apyrexial since the operation. His blood results postoperatively show a CRP of 75 and a white blood cell count of 13 x 10^9/L. He is mobilising well and has started oral fluids and a light diet. He has no further complaints besides a mild abdominal discomfort. On examination, he has a soft, nontender abdomen. His surgical wounds are dry. What is the SINGLE most appropriate management?

A. **Return to theatre for a laparotomy**
B. **Administer intravenous antibiotics and intravenous fluids**
C. **Administer oral antibiotics**
D. **Repeat whole blood cell and CRP in 24 hours**
E. **Reassure, no action required**

ANSWER:
Repeat white blood cell and CRP in 24 hours

EXPLANATION:

Mild abdominal discomfort is completely reasonable for someone who just had an abdominal surgery. A raised white cell count and CRP is not uncommon for a post-op patient and therefore antibiotics should not be initiated based on just these findings.

Single dose antibiotics are typically given on induction and it is not unless the patient is unwell or is pyrexic that it would be approprite to start intravenous antibiotics. This is because anastomotic leaks and wound infections are the feared complications of sigmoid colectomy.

In this case, he is completely asymptomatic so the best answer would be to repeat the white blood cell count and CRP in 24 hours. If these levels are seen decreasing the following day, it is a reassuring sign and no action would be required.

Q-34

A 55 year old male presents with longstanding gastric reflux, dysphagia and chest pain. He says it comes on gradually and initially only noticed it with solid food but more recently has been having symptos with soft foods also. Barium swallow shows irregular narrowing of the mid-thoracic oesophagus with proximal shouldering. What is the SINGLE most appropriate diagnosis?

A. **Achalasia**
B. **Oesophageal spasm**
C. **Gastro-oesophageal reflux disease (GORD)**
D. **Barrett's oesophagus**
E. **Oesophageal carcinoma**

ANSWER:
Oesophageal carcinoma

EXPLANATION:
The progressive nature of symptoms (first solids and now liquids) suggests a growing obstruction and points to a diagnosis of oesophageal malignancy. Achalasia would present with inability to swallow both liquids and solids from the outset.

Oesophageal cancer
Adenocarcinoma has now overtaken squamous cell carcinoma as the most commontype of oesophageal cancer

Risk factors

- Smoking → *risk factor for both adenocarcinoma and squamous cell carcinoma,but associated with a much higher risk for squamous cell carcinoma thanadenocarcinoma.*
- Alcohol
- GORD
- Barrett's oesophagus → *which is a precursor of adenocarcinoma*
- Achalasia → *Chronic inflammation and stasis from any cause increase the risk ofoesophageal squamous cell carcinoma*

Very often in the stem, there would be a patient with a history of gastro-oesophagealreflux disease (GORD) or Barrett's oesophagus. Sometimes, they would give a historyofincreasing dysphagia and weight loss.

Diagnosis

- Upper GI endoscopy with brushings and biopsy of any lesion seen is the firstline test
- CT or MRI scan of the chest and upper abdomen is performed for stagingpurposes

Q-35

A 30 year old lady has a long history of dysphagia especially when eating solid foods. Her symptoms of dysphagia has been worsening over the past few months. She notices that she regurgitates stale fluid. She also suffers from an ongoing nocturnal cough that started several months ago. What is the SINGLE most likely diagnosis?

A. Oesophageal stricture
B. Pharyngeal pouch
C. Gastro-oesophageal reflux disease
D. Oesophageal cancer
E. Meckel's diverticulum

ANSWER:
Pharyngeal pouch

EXPLANATION:
The confusion here is the history of the long term dysphagia which some may assume that she is suffering from a long term gastro-oesophageal reflux disease which consequently gave rise to an oesophageal stricture. However, remember that the stale food material can only point to one diagnosis which is pharyngeal pouch and so oesophageal stricture is less likely the option. The remaining options may have regurgitation but none with stale food.

Sometimes, question writers may also give a history of bad breath.

The cough is due to food regurgitated into the airway.

Q-36

A 34 year old man with a history of Crohn's disease has throbbing pain and a bloody discharge coming out via a punctum near his anus. The pain is worse when he tries to sit down. On examination, a fistula is seen passing superficially beneath the submucosa layer and does not cross the sphincter muscles. What is the SINGLE most appropriate management?

A. Botox injections
B. Anal dilatation
C. Lay open fistual

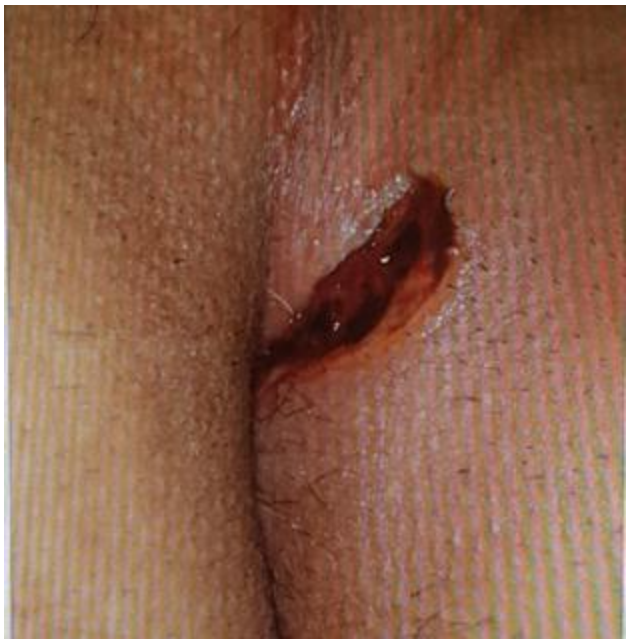
D. Fill fistula with fibrin glue
E. Drain and close fistula

ANSWER:
Lay open fistula

EXPLANATION:
Low or simple fistulae like in this stem are usually “laid open” by cutting a small amount of anal skin and muscle to open the tract. Chronic granulation tissue is removed and the tract is left open to allow it to heal spontaneously. It is usually packed on a daily basis until the wound starts to heal from inside out.

High or complex fistulae cannot be “laid open” because it involves cutting too much muscle and could result in faecal incontinence.

Remember, lay-open management cannot be used for fistulae that cross the entire internal and external sphincters as it will result in faecal incontinence. A submucosal fistulae is considered a low fistulae and can be treated with lay open method



Anal fistula after surgical treatment

Other methods of treatment involve antibiotics but antibiotics cannot treat the underlying fistula. It can only reduce symptom from recurrent sepsis.

Q-37

A 58 year old man presents with altered bowel habits and painless bleeding per rectum. A full blood count shows the following:

Haemoglobin 82 g/L
White cell count 10.2 x 109/L
Neutrophils 4.1 x 109/L
Platelets 350 x 109/L

A sigmoidoscopy was performed subsequently which showed an ulcer. What is the SINGLe most likely diagnosis?

A. **Colorectal carcinoma**
B. **Coeliac disease**
C. **Crohn's disease**
D. **Ulcerative colitis**
E. **Irritable bowel syndrome**

ANSWER:
Colorectal carcinoma

EXPLANATION:
Rectal cancers may appear as large fungating masses or an isolated ulcer. These malignancies are usually painless but tend to bleed.

COLORECTAL CANCER CLINICAL FEATURES

Rectal location
- PR bleeding. Deep red on the surface of stools.
- Change in bowel habit. Difficulty with defecation, sensation of incompleteevacuation, and painful defecation (tenesmus)

Descending-sigmoid location
- PR bleeding. Typically dark red
- Change in bowel habit

Right-sided location
- Iron deficiency anaemia may be the only elective presentation
- Weight loss
- Mass in right iliac fossa
- Disease more likely to be advanced at presentation

Emergency presentations
Up to 40% of colorectal carcinomas will present as emergencies.
- Large bowel obstruction (colicky pain, bloating, bowels not open)
- Perforation with peritonitis
- Acute PR bleeding

Q-38

A 32 year old man was involved in a road traffic accident and was operated for abdominal trauma where a splenectomy was performed. On the second day post-op, his abdomen becomes gradually distended and tender and he complains of epigastric fullness. He feels nauseous and vomited twice in the morning. His blood pressure has now dropped to 70/40 mmHg and he has a pulse rate of 140 beats/minute. A nasogastric tube was inserted and the patient was almost

immediately relieved. What is the SINGLE most likely diagnosis?

A. **Acute gastric dilation**
B. **Primary haemorrhage**
C. **Reactionary haemorrhage**
D. **Secondary haemorrhage**
E. **Subphrenic abscess**

ANSWER:
Acute gastric dilation

EXPLANATION:
Patients can develop acute gastric dilatation as a postoperative complication ofsplenectomy and abdominal surgery. This is due to disruption of blood supply to thestomach which predisposes to acute gastric dilatation. One of the causes of acute gastricdilatation is If the patient drinks too soon after an abdominal surgery when the stomachis still in ileus. The accumulation of fluid in the stomach may induce hypovolaemic shock.In addition, patients with acute gastric dilatation may proceed to have a gastric rupture.This will lead to the development of peritonitis.

Signs and symptoms of acute gastric dilatation include a distended and tender abdomen,epigastric fullness, nausea, vomiting and heartburn.

Insertion of a nasogastric tube would allow decompression of the stomach andimmediately improve patients condition.

Given that the nasogastric tube relieved his symptoms, it is unlike that this is a bleed.

The other options are less likely
Primary haemorrhage → Occurs immediately after surgery or as a continuation of anintraoperative bleeding. This is usually due to an unsecured blood vessel.

Reactionary haemorrhage → Occurs within the first 24 hours and it is usually due tovenous bleeding and is commonly thought to be due to improved post-operativecirculation and fluid volume, which results in rolling or slipping of ligature. It is importantto remember that postoperatively, the blood pressure would rise due to refilling of thevenous system and thus exposing unsecured vessels that bleed.

Secondary haemorrhage → Develops 24 hours or more after the surgery. It occurs up to10 days post-operatively. It is usually due to infection of an operative wound or rawsurfaces causing clot disintegration and bleeding from exposed tissue.

Q-39

A 46 year old woman has offensive yellow discharge from around the left nipple area over the past few days. She has a history of a subareolar abscess 6 months ago which was treated surgically. There are no abnormal skin changes on the

breast or lumps palpable. What is the SINGLE most likely diagnosis?

A. **Duct papilloma**
B. **Duct ectasia**
C. **Ductal fistula**
D. **Breast abscess**
E. **Paget's disease**

ANSWER:
Ductal fistula

EXPLANATION:
Ductal fistula (Mammillary fistula) is an abnormal communication between a mammary duct and the skin surface, usually near the areola and is suggested by discharge from para-areolar region. A fistula may form following an incision and drainage of an abscess hence the reason that a subareolar abscess is included in the history in this stem. Occasionally, there may be a history of a spontaneous rupture of an inflammatory mass preceding the development of the mammillary fistula. It is managed by excising and providing antibiotic cover. Recurrence of the ductal fistula is common.

Mammary duct ectasia is also another consideration as an answer. Duct ectasia refers to dilatation of the large and intermediate breast ducts and it is suggested by a green or brown nipple discharge. The ducts become blocked and secretions stagnate. Occasionally, nipple retraction and a lump with local pain is seen. Duct ectasia also occurs in patients with recurrent breast abscesses. The infection is usually mixed anaerobic based.

Breast abscess would usually present with unilateral localized pain, tenderness, erythema, purulent nipple discharge and a subareolar mass. This was not seen in this stem. Note that breast abscess may be due to mammary duct ectasia.

Q-40

A 62 year old woman presents to the Emergency Department with per rectal bleeding that started yesterday but has been ongoing. She reports this as dark red blood. On taking a full history, she states that she has painful defecation. In the last 2 months, she has noticed a change in bowel habit. Her blood tests show:

Haemoglobin 91 g/L
White cell count 8.9 x 10^9/L
Neutrophils 3.1 x 10^9/L
Platelets 310 x 10^9/L

What is the SINGLE most likely diagnosis?

A. **Colorectal carcinoma**
B. **Coeliac disease**
C. **Crohn's disease**
D. **Ulcerative colitis**
E. **Irritable bowel syndrome**

ANSWER:
Colorectal carcinoma

EXPLANATION:
One needs to consider colorectal carcinoma in any elderly woman presenting with a change in bowel habits, and rectal bleeding in the presence of anaemia.

Q-41

A 33 year old pregnant woman of 28 weeks gestation had sustained a minor chest injury three weeks ago caused by direct trauma from her seat belt during a car accident. She presents with a left subareolar mass. The mass is painless and firm and has dimpling. What is the SINGLE most likely diagnosis?

A. **Mastitis**
B. **Pregnancy related enlargement**
C. **Atypical hyperplasia**
D. **Sclerosing adenosis**
E. **Fat necrosis of the breast**

ANSWER:
Fat necrosis of the breast

EXPLANATION:
Fat necrosis feels like a firm, round lump (or lumps) and is usually painless, but in some people it may feel tender or even painful. The skin around the lump may look red, bruised or occasionally dimpled.

It is more likely to occur in high BMI women and it usually follows trauma like in this stem.

Q-42

A 28 year old pregnant woman with polyhydramnios comes for an anomaly scan at 31 weeks. On ultrasound scan, there was no gastric bubble seen. What is the SINGLE most likely diagnosis?

A. **Duodenal atresia**
B. **Oesophageal atresia**
C. **Gastroschisis**
D. **Exomphalos**
E. **Diaphragmatic hernia**

ANSWER:

Oesophageal atresia

EXPLANATION:
Diagnosis of oesophageal atresia may be suspected antenatally because of polyhydramnios and an absent fetal stomach bubble detected on ultrasound.

Oesophageal atresia

Prenatal signs: Polyhydramnios; small stomach, absent fetal stomach bubble detected on ultrasound

Postnatal: Cough, airway obstruction, secretions, blowing bubbles, distended abdomen, cyanosis, aspiration. Inability to pass a catheter into the stomach. X-rays show it coiled in the oesophagus.

Q-43

You are asked to review a 70 year old man who had a right hemicolectomy for caecal carcinoma 4 days ago as he has abdominal distension and recurrent vomiting. He has not opened his bowels since the surgery. On auscultation, there are no bowel sounds present and the abdomen looks distended. He has a temperature of 37.3 C and a heart rate of 90 beats/minute. A plain x-ray of the abdomen shows dilated small bowels. A full blood count was done of which results show:

White cell count 9 x 10^9/L
Haemoglobin 120 g/L

What is the SINGLE most appropriate next management?

A. **Intravenous antibiotics**
B. **Glycerine suppository**
C. **Laparotomy**
D. **NG tube suction and intravenous fluids**
E. **Total parenteral nutrition**

ANSWER:
NG tube suction and intravenous fluids

EXPLANATION:
The diagnosis here is paralytic ileus which is seen commonly after a prolonged surgery. It should be treated conservatively. 'Drip and suck' method would be the best option here. "Drip" meaning IV fluids. "Suck" meaning pass an NGT to empty the stomach of fluid and gas. Intestinal ileus usually settles with appropriate treatment.

Q-44

A 45 year old man is scheduled to have an elective anterior resection of the

rectum. What is the SINGLE most appropriate antibiotic prophylaxis regimen?

A. **Oral antibiotics a week before surgery**
B. **Oral antibiotic 2 days before surgery and continue for 5 days after surgery**
C. **Intravenous antibiotics the night before surgery**
D. **Intravenous antibiotics 3 days before surgery**
E. **Intravenus antibiotics at the induction of anaesthesia**

ANSWER:
Intravenous antibiotics at the induction of anaesthesia

EXPLANATION:
Surgical antibiotic prophylaxis is defined as the use of antibiotics to prevent infections at the surgical site. It needs to be given at the correct time and for most parenteral antibiotics that would be at the time of induction of anaesthesia.

Q-45

A 25 year old woman with longstanding constipation has severe anorectal pain on defecation. She notices streaks of blood that covers her stool. Rectal examination is impossible to perform as she is in such great pain. She recalls that the symptoms started following a particular episode of sharp intense pain on defecation. What is the SINGLE most likely diagnosis?

A. **Anal haematoma**
B. **Anal fissure**
C. **Anal abscess**
D. **Proctalgia fugax**
E. **Haemorrhoids**

ANSWER:
Anal fissure

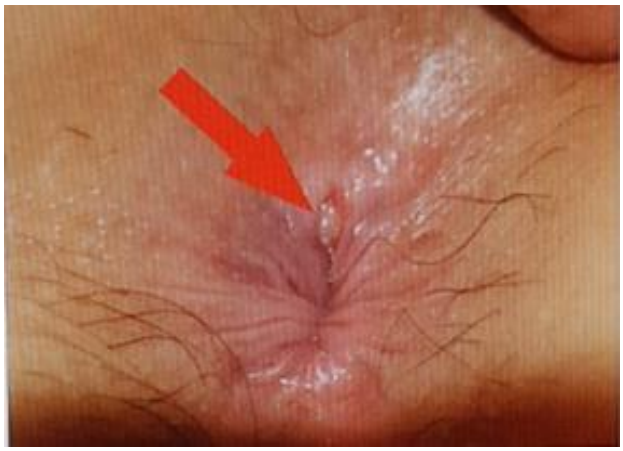
EXPLANATION:
Anal fissures are caused by constipation and straining. Patients often remember the episode of pain when the tear occurred. The pain is so severe tht they would refuse rectal examinations.

The distractor here is anal abscesses and haemorrhoids. Anal abscesses present with painful swelling and defecation can be painful however blood is not typical. Haemorrhoids may also present similarly with pain and bleeding *(like anal fissures)* however the symptoms of pain are usually intermittent *(unless thrombosed where the pain is acutely severe)* and do not tend to appear as streaks of blood on stools.

ANAL FISSURE
Anal fissures are longitudinal or elliptical tears of the squamous lining of the distal anal canal.

• exquisite pain with defecation and blood streaks covering the stools
• The fear of pain is so intense that they avoid bowel movements (and getconstipated)
• refuse proper examination of area → thus exam needs to be done underanaesthesia

If present for less than 6 weeks → defined as acute
If present for more than 6 weeks → defined as chronic



Q-46

A 57 year old male presents with sudden onset of severe abdominal pain, nausea and vomiting. The pain initially started as left lower quadrant pain but is now generalized. He has a temperature of 38.9 C and a pulse of 135 beats/minute. On examination, his abdomen has generalized guarding and rigidity. He has no past medical or surgical history of note and he is not taking any regular medications. What is the SINGLE most likely diagnosis?

A. Intussusception
B. Bowel ischaemia
C. Sigmoid volvulus
D. Perforated diverticulum
E. Zenker's diverticulum

ANSWER:
Perforated diverticulum

EXPLANATION:
Sudden onset of severe abdominal pain, rigidity, left iliac fossa pain in combination withtachycardia and fever are in favour of a perforated diverticulum.

A perforated diverticulum is a very rare complication of diverticulitis. Surgical treatment for a perforated diverticulum involves resection of the affected segment

Intussusception → is unlikely as it presents with nonspecific abdominal pain which isrecurrent. Occasionally, they present with nausea and vomiting as well.

Bowel ischaemia → also unlikely as it usually presents with moderate-to-severe colickyor constant and poorly localised pain. A striking feature is that the physical findings areout of proportion to the degree of pain and, in the early stages, there may be minimal orno tenderness and no signs of peritonitis. In the later stages typical symptoms ofperitonism develop, with rebound guarding and tenderness. In the stem they would alsolikely give some clues if they would like you to pick bowel ischaemia. Example, they mayinclude atrial fibrillation in part of the history.

Sigmoid Volvulus → Another unlikely answer. Most often it presents with sudden-onsetcolicky lower abdominal pain associated with severe abdominal distension. Patientswould also be unable to pass either flatus or stool. Vomiting would occur later. Note thathypotension and an elevated temperature may be present if there is colonic perforation.However, given that there was another choice in the question of a perforation(perforated diverticulum), that would be a better answer.

Zenker's diverticulum → Is definitely incorrect as Zenker's diverticulum represents apharyngeal pouch and does not present with abdominal pain. The usual presentingfeatures are dysphagia, regurgitation, aspiration, chronic cough and weight loss.

Q-47

A 50 year old man is admitted for an elective herniorrhaphy. Which SINGLE best criteria would lead to his elective procedure being postponed?

A. **Systolic blood pressure of 110 mmHg**
B. **Myocardial infarction 2 months ago**
C. **Haemoglobin of 12 g/dL**
D. **Pain around the hernia**
E. **Abdominal distention**

ANSWER:
Myocardial infarction 2 months ago

EXPLANATION:
After a myocardial infarction, elective surgery should not be performed for the next 6 months as there is an increased risk of mortality for this specific group.

Q-48

A 55 year old man with cirrhosis of the liver complains of tiredness and right upper quadrant pain over the last few months. He has lost 8 kg in the last 2 months. The liver is palpable on abdominal examination. What is the SINGLE most appropriate investigation?

A. **CA 125**
B. **CA 15-3**
C. **CA 19-9**
D. **Carcinoembryonic antigen (CEA)**
E. **Alpha-fetoprotein (AFP_**

ANSWER:
Alpha-fetoprotein

EXPLANATION:
The signs and symptoms and history of cirrhosis are indicative of hepatocellular carcinoma. Alpha-fetoprotein (AFP) is a good screening test for hepatocellular carcinoma.

Q-49

An 8 year old child has oral burns is found not to be breathing well. Intubation has failed. His oxygen saturations are low. What SINGLE anatomical structure is likely to be pierced to help this child recover?

A. **Cricothyroid membrane**
B. **Dura mater**
C. **Thyroid gland**
D. **Conjoint tendon**
E. **Intercostal muscles**

ANSWER:
Cricothyroid membrane

EXPLANATION:
A cricothyroidotomy would be indicated here and it involves a 2 cm transverse incision through the skin overlying the cricothyroid membrane and then straight through the cricothyroid membrane.

Q-50

A 22 year old man presents with haemoptysis. He had a tonsillectomy done 7 days ago. His blood pressure is 120/80 mmHg, pulse rate is 70 beats/minute and respiratory rate is 18 breaths/minute. What is the SINGLE most appropriate next step?

A. **Blood transfusion**
B. **Oral antibiotics and discharge**
C. **Admit and administer intravenous antibiotics**
D. **Return to theatre and explore**
E. **Intubate**

ANSWER:

Admit and administer intravenous antibiotics

EXPLANATION:
Admission and IV antibiotics would be most appropriate step. The patient should be admitted and the course of bleeding should be observed. Not every patient needs to go to theatre right away. Secondary haemorrhage are caused by necrosis of an area of blood vessel, related to previous repair and is often precipitated by wound infection

Complications of tonsillectomy
Intraoperative
- Haemorrhage
- Dental trauma due to displacement of the mouth gag

Immediate postoperative
- Haemorrhage; either primary or secondary. The overall bleeding rate is 2.3–3.4% of cases
- Primary haemorrhage happens within the first 24 hours, due to inadequate haemostasis at the time of surgery or the displacement of a tie from the inferior pedicle. It would require return to theatre in up to 1% of patients, although the majority of cases can be managed conservatively.
- Secondary, or reactive, haemorrhage occurs after discharge (1–10 days) and is
- due to separation of the slough in the tonsillar bed. The readmission rate is
- approximately 5%, of which less than 1% are returned to theatre
- Temporary dysphagia

Q-51

A 40 year old manual worker presents with a swelling in the groin. He says he noticed the appearance earlier today and it is accompanied by pain. On examintion, a mass is found to be just above and lateral to the pubic tubercle. On examination, the mass is reducible and impulse on coughing is seen. What is the SINGLE most likely diagnosis?

A. Inguinal hernia
B. Femoral artery aneurysm
C. Femoral hernia
D. Incarcerated hernia
E. Strangulated hernia

ANSWER:
Inguinal hernia

EXPLANATION:
The first hint here is his sex (male) and his occupation (manual worker). In adults, malesex and heavy lifting are risk factors for inguinal hernias

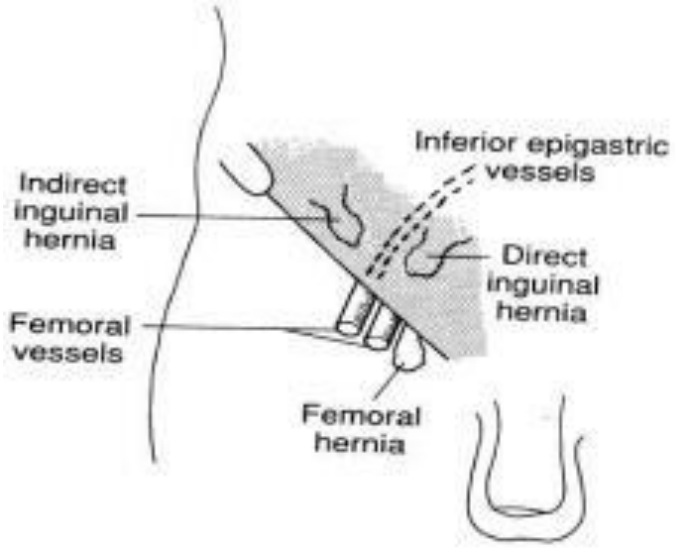
Traditionally it is taught that an inguinal hernia will lie above and medially to the pubictubercle whereas a femoral hernia lies laterally and below. This is not strictly true, as theinternal ring is always lateral to the femoral canal and a small indirect inguinal hernia willtherefore be lateral to the pubic tubercle. A better test to differentiate the two might beto place the finger over the femoral canal for reducible hernias and then ask the patientto cough. When the patient coughs, a femoral hernia should remain reduced while aninguinal hernia will reappear as an obvious swelling.

Remember, inguinal hernias has impulse on coughing or bearing down. Femoral herniasare usually irreducible (due to the narrow femoral canal) and cough impulse rarelydetectable.

Incarcerated hernia cannot be pushed back into the abdomen by applying manualpressure and hence are irreducible.

Strangulated hernia are also irreducible. They are tense and red and usually followed bysymptoms and signs of bowel obstruction.

Discrimination between direct and indirect inguinal hernia by physical examination is notvery accurate. In an indirect inguinal hernia, the protrusion passes through the deepinguinal ring and is located lateral to the inferior epigastric artery. Whilst traditionaltextbooks describe the anatomical differences between indirect (hernia through theinguinal canal) and direct hernias (through the posterior wall of the inguinal canal), thisis of no clinical relevance as the management still remains the same. The type ofinguinalhernia in adults is usually confirmed at the operation.



Q-52

A 43 year old diabetic, who takes regular sitagliptin, has a planned elective hernia repair surgery. What is the SINGLE most appropriate advice to give regarding the perioperative management of his diabetic medication?

A. **Start normal saline infusion and dextrose at time of admission**
B. **Start subcutaneous insulin**
C. **Omit sitagliptin 3 days prior to the procedure**
D. **Continue medication with no change**
E. **Omit sitagliptin on the day of the procedure**

ANSWER:
Omit sitagliptin on the day of the procedure

EXPLANATION:
Perioperative management of diabetes is often quite confusing. Below are guIdelines that give you an idea of which medications need to be stopped and when they can be restarted. It is not an exhaustive list and different hospitals have different protocols for diabetic medications but the general concept is still there.

The highlighted boxes represent frequently asked topics which you should memorize

Insulin type and frequency	**Day prior to admission**	**Day of surgery**	**After surgery**
Long-acting insulin, taken once a day in the evening	Take as usual	See 'after surgery' box	Restart once eating and drinking
Long-acting insulin, taken once a day in the morning	Take as usual	Reduce usual dose by approximately 1/3 for each expected omitted meal	Restart once eating and drinking
Twice daily insulins eg mixed or intermediate acting	Take as usual	Half usual morning dose	Restart once eating and drinking
Three times a day (mealtime) insulin	Take as usual	Omit doses on meals that are to be missed	Restart once eating and drinking

Types of non-insulin anti-diabetic medicines	**Day before surgery**	**Day of surgery**	**After surgery**
Acarbose	Take as normal	Omit dose if missing meal	Restart once eating and drinking
Meglitinide (e.g. gliclazide, glipizide)	Take as normal	Omit dose if missing meal	Restart once eating and drinking
Short acting sulphonyl ureas (e.g. glibenclamide)	Take as normal	Omit dose of missing meal	Restart once eating and drinking
Long acting sulphonylureas (e.g. glibenclamide)	Take as normal	Omit dose if missing meal	Restart once eating and drinking
Metformin (including Glucophage SR)	Take as normal (unless surgery with contrast dye – needs to be stopped two days	Take as normal (unless surgery with contrast dye – needs to be stopped two days	Take as normal (unless surgery with contrast dye – needs to be stopped two days

	before surgery)	before surgery))_	before surgery)
Pioglitazone	Take as normal	Take as normal	Restart once eating and drinking
DPP IV inhibitor (e.g. sitagliptin, vildagliptin, saxagliptin)	Take as normal	Omit dose if missing meal	Restart once eating and drinking
Short-acting GLP-1 analogue (e.g. exenatid, liraglutide)	Take as normal	Omit dose if missing meal	Restart once eating and drinking
Long-acting GLP-1 analogue (e.g. exenatide)	Take as normal	Omit dose if missing meal	Restart once eating and drinking

Blood glucose should be checked regularly before, during and after the operation. If at any point the blood glucose level is higher than 11 mmol/L, consider starting an insulin infusion intravenously.

Q-53

A 64 year old man has just had major abdominal surgery. He is not a known smoker and takes no chronic medications. His post-operative pain is being effectively controlled with epidural analgesia. Ten hours post-operatively, he was noticed to have only passed 30 ml of urine in his catheter bag. The patient is otherwise alert, oriented and well. His blood pressure is 100/60 mmHg and his pulse rate is 90 beats/minute. What is the SINGLE most appropriate initial step for this patient?

A. Stop epidural analgesia
B. Check urinary catheter
C. Administer intravenous fluids
D. Ultrasound of bladder
E. Alpha blocker treatment

ANSWER:
Check urinary catheter

EXPLANATION:
The fact that he still has a catheter, the initial step would be to check the catheter. Sometimes the catheter or drainage bag tubing may be kinked and you just need to straighten it. It could also be that the catheter is blocked in which case a simple flush may fix it. The position of the catheter and drainage back is also important whereby it should be positioned below your bladder for urine to drain.

Post-operative urinary retention cannot happen when he has a urinary catheter in situ. Thus, there would be less of a reason to perform an ultrasound of the bladder at this stage. In whichever case, stopping analgesia would be the wrong answer as this

patient has just undergone a major abdominal surgery and requires analgesia for adequate management of his pain.

Administration of fluids may be considered if we are considering an intraabdominal bleed as a cause of an acute kidney injury resulting in decreased urine output. This is not the case here as this patient is normotensive.

If the patient had postoperative hypotension and consequently developed oliguria, it would be reasonable to correct this by means of a fluid challenge. Patients can develop postoperative hypotension and decreased urine output due to several reasons, one of which is haemorrhage.

In addition to this, oliguria may be caused by the adrenal cortex and posterior pituitary response tostress which release aldosterone and ADH respectively. Mainly this can happen during the first 24 hours after an operation is essential to know that oliguria should be temporary and not last more than 24 hours. If a urine output is less than 400 ml in the first 24 hours, further investigations are warranted.

What does fluid challenge mean?
This involves the following steps:

- Rapid (up to 15 minute) administration of 500 ml crystalloid (normal saline/Hartmann's)
- Immediate reassessment – if there is still evidence of hypovolaemia administer a further bolus of a crystalloid

In practice, doctors often prescribe 1 L of a crystalloid stat.

Why choose a crystalloid over a colloid for resuscitation?
Theoretically, colloids exert more osmotic load and is able to keep more fluids intravascularly however there is evidence of increased rates of renal failure associated with colloid resuscitation and one has to take into account that colloids are a lot more expensive than crystalloids. For those reasons, clinicians prefer the use of crystalloids as a choice of fluid for resuscitation.

Q-54

A 41 year old female presents to her GP concerned about the possibility of her having breast cancer. Her family history is significant for her grandmother having passed away from breast cancer, her mother having had a right mastectomy last year and her sister who was diagnosed with breast cancer at age 38 who is currently in remission from breast cancer. Gene typing was done based on her family history and the presence of the BRCA1 gene mutation were shown in this patient. Her last mammogram was 6 months ago and was found to be normal. Examination of the breast revealed no skin changes, no nipple changes and no masses. A 1 cm by 1 cm, smooth and non-tender lymph node was found in her axilla. What is the SINGLE most appropriate next step for this patient?

A. **Mammogram**
B. **Ultrasound of the breast**
C. **Sentinel node biopsy**
D. **Fine needle aspiration**
E. **Offer prophylactic mastectomy**

ANSWER:
Offer prophylactic mastectomy

EXPLANATION:
A prophylactic mastectomy might seem drastic at this stage but with her family history and genetic mutations, she is at a very high risk of developing breast cancer. There are four instances in which a prophylactic mastectomy of either one or both breasts should be carried out. These are as follows:

- Strong family history of breast cancer
- Presence of inherited mutations in one of two breast cancer susceptibility genes (BRCA1 and BRCA2)
- Previous cancer in one breast
- Biopsies showing lobular carcinoma in situ and/or atypical hyperplasia of the breast.

As we can see from the scenario, this patient ticks two out of the four boxes. The next best step for her would be a referral to a surgeon for a prophylactic mastectomy.

Women aged 50 to 70 years old in England are offered mammograms every 3 years. In cases like this patient where there is BRCA1 mutation, a mammogram would be offered annually from ages 40 to 69. Since she just had it 6 months ago, it is not the right answer. The NHS takes breast cancer risk very seriously, and would take precuationary steps such as organising MRI scans of the breast annually as well as mammograms for those who have a BRCA1 mutation.

An ultrasound of the breast is used in cases in which a breast lump is found during examination of the breast.

A sentinel node biopsy isdone for the staging of cancers. The sentinel lymph node is the first lymph node or group of lymph nodes that drain a cancer site.

Fine needle aspiration is done if a lump was found during breast examination. It is done after an ultrasound of the breast.

Remember, prophylactic bilateral mastectomies and prophylactic bilateral oophorectomies can be offered in cases in which the patient has a strong family history of cancer and has genetic markers for the cancer.

Q-55

A 75 year old man has left-sided earache and discomfort when he swallows.

There is ulceration at the back of his tongue and has a palpable non-tender cervical mass. What is the SINGLE most likely diagnosis?

A. **Acute mastoiditis**
B. **Dental abscess**
C. **Herpes zoster infection**
D. **Oropharyngeal carcinoma**
E. **Tonsillitis**

ANSWER:
Oropharyngeal carcinoma

EXPLANATION:
Oropharyngeal carcinoma is the most probable diagnosis here.

Acute mastoiditis may have ear pain but does not have discomfort when swallowing anddoes not present with an ulcer at the back of tongue.

Herpes zoster infection has a different presentation where patients complain of burning,itching or paraesthesia in one dermatome. Although in Ramsay Hunt Syndrome thepresenting feature is often pain deep within the ear, there is usually a rash or herpeticblisters in the distribution of the nervus intermedius.

A dental abscess would present with worsening pain which may radiate to the ipsilateralear, jaw and neck with a bad taste in the mouth, fever, malaise and trismus (inability toopen the mouth). The ulceration of the tongue does not fit in this case.

Tonsillitis pain may be referred to ears but on examination, reddened and swollentonsils would definitely be seen. There would also be presence of a fever and again itwould not account for the ulceration at the base of the tongue

Oropharyngeal carcinoma
Features
- Typical old patient, smoker
- Persistent sore throat
- A lump in the mouth or throat
- Referred otalgia
- Difficulty swallowing or moving your mouth and jaw
- Unexplained weight loss

Q-56

A 53 year old man has become increasingly short of breath in the 3 hours since returning to the ward after a thyroidectomy. He has a temperature of 37.5 C, heart rate of 110 beats/minute, blood pressure of 90/60 mmHg, respiratory rate of 35 breaths/minute, and SaO2 of 89% on air. There are harsh inspiratory upper airway sounds and reduced air entry bilaterally. What is the SINGLE most

appropriate course of action?

A. **Cut the subcutaneous sutures**
B. **Adrenaline**
C. **Low molecular weight heparin**
D. **Oxygen 15 L via non-rebreather mask**
E. **Salbutamol Nebulizer**

ANSWER:
Cut the subcutaneous sutures

EXPLANATION:
This is a very common question in PLAB part 1. Once you do a few of these questions,you would soon realise that you would be able to answer this question after reading thefirst sentence. Anyone with shortness of breath and stridor after a very recentthyroidectomy needs their sutures cut.

A rare complication of thyroidectomy is upper airway obstruction secondary tohaematoma. To prevent the airway from being totally occluded, it is necessary toreleasethe pressure this haematoma is causing by loosening the tightness of the compartmentin which it is building up. If this does not improve his breathing, this man will very soonneed intubation. Whilst this is a rare scenario and not important per se , it is stillcommonly asked in exams.

Adrenaline → is used in anaphylaxis, which is a reasonable differential in stridor (due tolaryngoedema), but is less likely here than the local effects of the surgery.
Low molecular weight heparin → is the treatment for a pulmonary embolus, which doescause sudden breathlessness, but not due to upper airway compromise.

Oxygen → is a reasonable response to dropping SaO2 in someone with healthy lungs but is not the treatment that is going to arrest this man's upper airway occlusion.

Salbutamol Nebulizer → is useful to open smaller constricting airways (e.g. in asthma orCOPD) but will not reduce the pressure effect of a haematoma on the trachea.

Q-57

A 44 year old man has just had a hemi-colectomy for colorectal cancer. He is now post-op and has been put on 100% facemask oxygen. An arterial-blood gas analysis reveals:

pH is 7.54
PaO2 = 28.8 kPa
PaCO2 =3.8 kPa

He is breathless and dyspneic. What is the SINGLE best managemen t for this patient?

A. **Physiotherapy**
B. **Ventilate and intubate**
C. **Immediate laparotomy**
D. **IV antibiotics**
E. **Reduce oxygen**

ANSWER:
Reduce oxygen

EXPLANATION:
Physiotherpay is the incorrect answer. If you chose this, you might be thinkingof atelectasis as the diagnosis. Atelactasis presents with much of the same signs and symptoms except it presents with hypoxia, and here we can see that the PaO2 is greater than normal.

There was no mention of a fever so IV antibiotics is the incorrect answer as well.

The diagnosis here is hyperoxaemia or hyperoxia

Hyperoxaemia/Hyperoxia
Hyperoxaemia or hyperoxia is defined as PaO2 > 16 KpA (120 MMhG). This kind of hyperoxia can lead to oxygen toxicity, caused from the harmful effects of breathing molecular oxygen at elevated partial pressures. Hyperoxia differs from hypoxia in that hyperoxia refers to a state in which oxygen supply is too much, whereas hypoxia refers to the state in which oxygen supply is insufficient.

Atelectasis
Atelectasis is also known as alveolar collapse. This is caused when airways become obstructed, usually by bronchial secretions. Most cases are mild and may go unnoticed. Symptoms are slow recovery from operations, poor colour, mild tachypnoea and tachycardia. Prevention is by pre-operative and postoperative physiotherapy. In severe cases, positive pressure ventilation may be required.

Q-58

A 24 year old woman presents with a 1 cm small smooth, firm, mobile mass in her left breast. She is very anxious andwants a form of investigation. What is the SINGLE most appropriate investigation to perform?

A. **Mammography**
B. **Ultrasound scan of breast**
C. **Fine needle aspiration cytology**
D. **Magnetic resonance imaging scan of breast**
E. **Computerised tomography scan of breast**

ANSWER:
Ultrasoundscan of breast

EXPLANATION:
Generally for a woman younger than 35 years old, an ultrasound is the preferred radiological assessment. This is because young women have increased tissue density which reduces sensitivity and specificity of a mammography.

Q-59

A 35 year old diabetic man on insulin is booked in for an elective hernia operation. What is the SINGLE most appropriate management plan for his diabetes on the day of the surgery?

A. **Stop insulin and start metformin on the day of surgery**
B. **Administer insulin and saline preoperatively**
C. **Administer intravenous insulin, dextrose and saline pre-operatively**
D. **Administer insulin as usual**
E. **Stop insulin for the duration fo the operation**

ANSWER:
Administer intravenous insulin, dextrose and saline pre-operatively

EXPLANATION:
The patient needs to be on a sliding scale pre-operatively to maintain optimal glucose control.

In the sliding scale method, insulin dose is based on your blood glucose level. The higher your blood glucose, the higher the insulin dose is adjusted to.

Every hospital has slightly different guidelines for a sliding scale. But the general key idea is to maintain ahourly monitoring of capillary blood glucose target between 4-9 mmol/L. This is done by administering insulin, dextrose and saline to keep the glucose levels between 4-9 mmol/L.

Q-60

A 66 year old woman is found to be anaemic. As part of her exam, she had a barium enema which reveals a mass lesion in the right side of the large intestine. What is the SINGLE most likely diagnosis?

A. **Sigmoid volvulus**
B. **Anal fissure**
C. **Sigmoid carcinoma**
D. **Diverticular disease**
E. **Caecal carcinoma**

ANSWER:
Caecal carcinoma

EXPLANATION:
A mass in the right side of the large intestine and anaemia makes caecal carcinoma the likely diagnosis from the given options.

Usually the patient presents with unexplained pain in the right iliac fossawith or without general symptoms such as anaemia, malaise and weakness. However it is important to note that abdominal pain often develops latein the disease. Cancers arising on the right side of the large intestine (ascending colon and caecum) tend to be exophytic. For that reason, it very rarely causes obstruction of faeces, and presents with symptoms such as anaemia.

Q-61

A 46 year old woman presents to her local GP with the primary complaint of yellowing of her eyes and skin. She saysthat her son, who works in the United States, noticed it first when he visited home last week and she is now seeking advice upon his insistence. On further questioning, the patient reveals that she has also been suffering from constant back pain for the past few months. She thinks that her back pain is from an old university hockey injury that she sustained when she was a young woman. She admits that the back pain keeps her up at night. She also admits that she has noticed a drastic 10 kilogram weight loss in the past few weeks but thinks that is due to her not having much of an appetite any more. The patient smokes 12 cigarettes a day and has smoked for the past eighteen years. She admits to drinking alcohol more than average on a weekly basis. She has worked for over twenty years in the NHS as a nurse but is now on sabbatical. She reports no complaints in her private or professional life. Upon physical examination, the patient appears cachectic. There is marked yellowing of her sclera and her skin. There are numerous scratch marks on her torso and limbs. When questioned about them, the patient admits to feeling itchy constantly. Abdominal examination reveals a palpable mass just beneath the liver. Blood tests were done and the results are as follows:

Bilirubin 28 micromol/L
Alanine transferase (ALT) 76 U/L
Aspartate transaminase (AST) 73 U/L
Alkaline phosphatase (ALP) 329 U/L
Gamma glutamyl transferase (GGT) 346 U/L

A random capillary blood glucose test shows her blood glucose level to be 18 mmol/L

What is the SINGLE most likely diagnosis for this patient?

A. **Cancer of the head of the pancreas**
B. **Chronic pancreatitis**
C. **Cholangiocarcinoma**
D. **Choledocholithiasis**
E. **Cholecystitis**

ANSWER:
Cancer of the head of the pancreas

EXPLANATION:
This patient has cancer of the head of the pancreas. The initial signs and symptoms of pancreatic cancer are often non-specific and patients will report anything from anorexia to mid-epigastric/back pain. The pain for carcinoma of the head of pancreas is often very vague and this stem portrays it well. By the time of patient presentation, pancreatic cancer will have often spread to other parts of the body or the entirety of the pancreas. The clue that points to pancreatic cancer in this stem is the patient's drastic weight loss AND the elevation of her bilirubin levels as well as all of her liver enzymes.

Liver function tests are done in patients in whom pancreatic cancer is suspected to confirm jaundice. Liver function tests will typically show an obstructive jaundice with raised bilirubin (conjugated and total) levels. There will also be an increase in all other live enzymes with alkaline phosphatase and gamma-glutamyl transferase being raised the most, and aspartate transferase and alanine transferase being raised to a lesser extent. The reason for an obstructive picture is because the tumour of the head of the pancreas blocks the biliary tract.

The palpable mass just beneath the liver described in this stem represents the gallbladder which is typically palpable in patients with carcinoma of the head of pancreas.

Other subtle hints that point towards pancreatic cancer is the more than average alcohol intake and smoking which are risk factors. It is important to note that alcohol does not appear to be an independent risk factor but alcohol is a risk factor towards chronic pancreatitis which may lead to pancreatic cancer.

Cholangiocarcinoma are rare adenocarcinomas of the biliary tract often presents with abdominal pain mostly localised to the right upper quadrant. The triad of cholangiocarcinoma is jaundice, right upper quadrant pain and weight loss. Right upper quadrant pain is the main differentiating feature in this stem of cholangiocarcinoma from pancreatic cancer since the liver function tests of cholangiocarcinoma may be similar to the liver function test results of pancreatic cancer.

PANCREATIC CANCER
60% of pancreatic tumours are adenocarcinomas which typically occur at the head of thepancreas.

Associations
- Smoking
- Diabetes
- Chronic pancreatitis

Features

Tumours in the head of pancreas

- Obstructive jaundice → dark urine, pale stools and pruritus
- May be painless although around 70% are associated with epigastric or left upper quadrant pain radiating to the back which may be vague

Tumours in body or tail of pancreas

- Epigastric pain which radiates to the back and relieved by sitting forward

Either tumour in head or body/tail may cause:

- Anorexia, weight loss
- Atypical abdominal pain

Investigation

- CA 19-9 is non specific but helps assess prognosis
- Transabdominal ultrasound has a sensitivity of around 60-90%
- High resolution CT scanning is the investigation of choice

Management

- Whipple's resection (pancreaticoduodenectomy) is considered in fit patients with no metastasis
- ERCP with stenting is often used for palliation

Q-62

You are working as a Foundation Year (FY2) doctor in the surgical department. A 65 year old man is in the ward following resection of an adenocarcinoma in his descending colon. During the operation, the surgeon also opted to do a left hemicolectomy. On the tenth postoperative day, he suddenly developed left abdominal pain. By the time he had alerted the nurse to his pain, three hours had already lapsed. The pain is severe and dull in nature and worsens when he moves or turns to his sides. There is no associated nausea or vomiting. His past medical history is significant for a backgraoundof chronic obstructive disease(COPD) ofwhich part of his medications include oral steroids. He also has a thirty pack-year smoking history. Upon physical examination, the patient appears to be anxious and lethargic. Abdominal examination reveals an area of tenderness at his left lower quadrant but no rigidity or guarding is present. Bowel sounds are sluggish. His vitals are as follows:

Temperature 37.8 C
Blood pressure 130/82 mmHg
Heart rate 100 beats/minute

What is the SINGLE most likely cause of his pain?

A. Paralytic ileus
B. Anastomotic leak
C. Pelvic haematoma

D. Metastatic spread
E. Intestinal obstruction

ANSWER:
Anastomotic leak

EXPLANATION:
The scenario is quite straightforward and depicts one of the most common and feared surgical complications after anterior resection of the bowel: an anastomotic leak.

An anastomotic leak is defined as a leak of the luminal contents from a surgical joint between two hollow viscera. There are several risk factors that increase the risk of an anastomotic leak developing, such as peritoneal contamination, rectal anastomosis, immunocompromised, various medications and smoking. In this patient, there is a significant history of long term smoking. He is also a known case of chronic pulmonary obstructive disease (COPD). Prolonged use of steroids also increases the risk of anastomotic leak.

The patient has a fever and abdominal pain which are the most common clinical features of an anastomotic leak. They usually present between five to ten days postoperatively. This can be quite dangerous especially if it leads to peritonitis. In this question, peritonitis has not developed yet as in peritonitis, the patient usually has severe generalised abdominal pain with generalized guarding and rigidity.

A pelvic haematoma is not the correct option. Pelvic haematomas are seen in obstetric or gynaecology surgeries where bleeding results in collection of blood in the pelvic peritoneal space.

The key principle in managing an anastomotic leak is to prevent contamination and resultant sepsis. Initial management involves nil by mouth (NBM), broad-spectrum antibiotic cover and intravenous fluids. Minor leaks may be managed through observation and bowel rest alone, with potential for percutaneous drainage if needed. For a major leak, an exploratory laparotomy is required.

Hot tip: In the exam, if a patient presents 10 days post bowel surgery with abdominal pain, it is likely to be an anastomotic leak.

Q-63

A 39 year old smoker has a thick creamy brown discharge coming from her left nipple. It has been on going for the past two weeks. She has been experiencing left breast pain for the past few months. On examination, there is a palpable subareolar mass with nipple retraction on her left breast. There are no palpable lymph nodes. Her temperature is 37.1 C. What is the SINGLE most likely diagnosis?

A. Breast abscess

B. **Fibroadenoma**
C. **Duct ectasia**
D. **Duct papilloma**
E. **Ductal fistula**

ANSWER:
Duct ectasia

EXPLANATION:
Duct ectasia refers to dilatation of the large and intermediate breast ducts and it is suggested by a green or brown nipple discharge. The subareolar mammary ducts become chronically inflamed, dilated and scarred. The first clue given is that she is a smoker. Duct ectasia is associated with smoking.

The other options in this question are less likely.

Breast abscess→ is suggested by a fluctuant lump, hot and tender, acute presentation often in puerperium, chronic after antibiotics

Fibroadenomas→ firm, non-tender, highly mobile palpable lumps which are usually painless

Duct papilloma→ is suggested by bleeding from nipple

Ductal fistula (Mammillary fistula)→ is an abnormal communication between a mammary duct and the skin surface, usually near the areola and is suggested by discharge from a para-areolar region

Q-64

A 52 year old man has hoarseness of voice following a thyroid surgery a week ago. There has been no signs of improvement. What is the SINGLE most likely anatomical structure(s) involved?

A. **Bilateral recurrent laryngeal nerve**
B. **Unilateral recurrent laryngeal nerve**
C. **Unilateral external laryngeal nerve**
D. **Bilateral external laryngeal nerve**
E. **Vocal cords**

ANSWER:
Unilateral recurrent laryngeal nerve

EXPLANATION:
There is a risk of recurrent laryngeal nerve injury post thyroidectomy. If it is unilateral, it results in hoarseness. If it is bilateral, it results in aphonia and airway obstruction. Unilateral damage is more common than bilateral laryngeal nerve injury.

Q-65

A 41 year old pregnant woman presents to A&E with right upper quadrant pain that started in the last 12 hours and is gradually worsening. She has dark urine and pale stools for the last 2 days. She is noted to have a yellow sclera on examination. Her blood pressure is 145/95 mmHg. What is the SINGLE most appropriate investigation?

A. **Ultrasound of abdomen**
B. **Urine protein:creatinine ratio**
C. **Urinary bilirubin**
D. **Urinary urobilinogen**
E. **Alkaline phosphatase**

ANSWER:
Ultrasound of abdomen

EXPLANATION:
Symptomatic gallstone disease is the second most common abdominal emergency inpregnant women. Pregnancy alters bile composition and gallbladder emptying slows inthe second trimester, increasing the risk of gallstones.

Do not be misled into thinking this is pre-eclampsia due to the high blood pressureand RUQ pain. Blood pressure will be raised in any patient who is in pain. Furthermore,pre-eclampsia does not present with symptoms of jaundice.

Ultrasound of abdomen is the best option here as an ultrasound will most likely showthe cause which is likely gallstones in this stem.

Raised urinary bilirubin with absent or reduced urobilinogen is suggestive of obstructivejaundice and will merely confirm an obstructive jaundice picture.

Alkaline phosphatase will also be raised with gallstones causing bile duct obstructionbut also can be seen raised in pregnancy. Alkaline phosphatase is not a useful test inpregnancy because of elevated levels from the placenta.

Q-66

A 32 year old female patient presents with intermittent pain in the upper outer quadrant of her left breast which radiates to the axilla. The pain is described as stabbing pain. On examination, there are no palpable lumps or palpable lymph nodes. What is the SINGLE most likely diagnosis?

A. **Cyclical mastalgia**
B. **Non-cyclical mastalgia**
C. **Fibroadenoma**
D. **Breast cyst**
E. **Mondor's disease**

ANSWER:
Non-cyclical mastalgia

EXPLANATION:
Non-cyclical mastalgia is defined as pain that does not coincide with the menstrual cycle. It occurs usually around 30 to 50 years of age. It is usually unilateral and localised to one part of the breast. It is described as having a burning or stabbing pain.

While true that non-cyclical mastalgia can occasionally be caused by a fibroadenoma or cyst, there is no lump in this stem to point us in the direction of that. Both fibroadenoma and cyst would have a palpable lump.

As this stem tells us that the pain is intermittent and there is no mention of menstrual cycles, the likely answer is non-cyclical mastalgia

Q-67

A 44 year old female presents with right upper quadrant pain radiating to the right shoulder. On examination, her sclera appears yellow. Her BP is 120/85 mmHg; respiratory rate 15/min, Heart rate 85 bpm; Temperature 37.3 C; WBC 9 x 10^9/L. She has no relevant past medical history and is not on any medications. What is the SINGLE most appropriate investigation?

A. Ultrasound abdomen
B. Urinary bilirubin
C. Alkaline phosphatase
D. Serum cholesterol
E. X-ray abdomen

ANSWER:
Ultrasound abdomen

EXPLANATION:
Ultrasound of abdomen is the best answer, as this will most likely show the cause (i.e. gallstones present or not). The diagnosis here is likely to be biliary colic which presents in this manner. As gallstones obstruct the common bile duct, it may present with jaundice.

Urinary bilirubin will merely confirm an obstructive jaundice picture.

Alkaline phosphatase can also confirm a cholestatic picture.

Testing serum cholesterol will only show increased cholesterol levels, which is not very specific and does not address the cause

Plain Abdominal X-ray only shows around 10% of gallstones.

Q-68

A 55 year old man has a history of weight loss and tenesmus. He is diagnosed with rectal carcinoma. Which SINGLE risk factor is NOT associated with rectal carcinoma?

A. **Smoking**
B. **Family history**
C. **Polyposis syndromes**
D. **Inflammatory bowel disease**
E. **High fibre diet**

ANSWER:
High fibre diet

EXPLANATION:
It is quite the opposite. A low fibre diet is a risk factor for colorectal cancers.

Q-69

A 67 year old female underwent a radical mastectomy. She now comes with the complaint of swelling and redness in her right upper limb. Which of the following structure(s) can cause these symptoms after being removed in surgery?

A. **Epitrochlear lymph node**
B. **Cephalic vein**
C. **Subclavian artery**
D. **Axillary lymph node**
E. **Long thoracic nerve**

ANSWER:
Axillary lymph node

EXPLANATION:
Axillary node clearance
Axillary node clearance increases risk of lymphoedema.

The extent of axillary node clearance performed in invasive breast cancer is dependenton the likelihood of finding involved lymph nodes. The more lymph nodes that are cleared, the higher the risk of lymphoedema. This usually presents less than a year following the operation.

Indications
- Invasive breast cancer
- Positive sentinel lymph node biopsy

Common problems associatedwith axillary lymph node clearance
- Numbness around the scar and upper arm (canbe permanent)
- Lymphoedema

- Seroma (fluid collection at the site of operation)
- Frozen shoulder

Q-70

2 hoursafter an appendectomy, a 33 year old man complains of feeling unwell, having abdominal pain. He has a pulse of 128 beats/minute, a blood pressure of 88/55 mmHg and a respiratory rate of 32 breaths/minute. What is the SINGLE most likely reason for his observations?

A. Intra-abdominal bleed
B. Anastomotic leak
C. Sepsis
D. Intestinal obstruction
E. Pulmonary embolism

ANSWER:
Intra-abdominal bleed

EXPLANATION:
The most likely answer here would be an intra-abdominal bleed. Given the time of 2 hours post-op, bleeding is the most likely reason for his observations deteriorating.

It is also important to note that there is no anastomosis in an appendectomy hence anastomotic leak is clearly wrong. Bowel perforation (if given) would be a potential answer however the timing of2 hours does not quite fit.

Q-71

A 67 year old woman presents with a firm, round, painless 5 cm lump in her right breast. She has a bruise on the surface and there is no discharge. What is the SINGLE most likely diagnosis?

A. Fat necrosis
B. Fibroadenoma
C. Fibroadenosis
D. Duct ectasia
E. Breast cancer

ANSWER:
Fat necrosis

EXPLANATION:
Fat necrosis feels like a firm, round lump (or lumps) and is usually painless, but in some people it may feel tender or even painful. The skin around the lump may look red, bruised or occasionally dimpled. Like in this question, there was a bruise noticed on the surface. Occasionally fat necrosis can cause the nipple to be pulled in (retracted). Sometimes within an area of fat necrosis cysts containing an oily fluid can occur.

Fat necrosis or sclerosing adenitis → is suggested by a firm, solitary localized lump. Confirmed by appearance on mammogram and benign histology

Fibroadenoma→ is suggested by a smooth and mobile lump ('breast mouse'), usually in ages 15-30 years old. They are someimes described as "breast mice" because they can easily move around within the breast.

Fibroadenosis→ is the most common cause of breast lumps in women of reproductive age. The peak incidence is between 35 and 50 years of age. It is a term used to describe a group of benign conditions that affect the breast. The symptoms of fibroadenosis include breast pain (mastalgia or mastodynia), increase in breast size and lumpiness of the breast (nodularity), particularly just before or during a period

Duct ectasia→ is suggested by a green or brown nipple discharge

Breast cancer→ is suggested by fixed, irregular, hard, painless lump, nipple retraction, fixed to skin (peau d'orange) or muscle, and local, hard or firm, fixed nodes in axilla

Q-72

A68 year old male presents with swelling in the lower pole of the parotid gland. This swelling has been slow growing for the past 7 years. On examination, the parotid gland is firm in consistency. What is the SINGLE most probable diagnosis?

A. **Pleomorphic adenoma**
B. **Adenolymphoma**
C. **Mikulicz's disease**
D. **Parotiditis**
E. **Frey's syndrome**

ANSWER:
Pleomorphic adenoma

EXPLANATION:
Pleomorphic adenomas are the most common cause of salivary gland tumours. It is around 10 times more common in the parotid gland than in the submandibular gland or in the sublingual gland so in the exam the stem would be most likely a parotid gland swelling. They are slow growing and painless. Although they most often occur in the middle age, they may also be seen in the elderly like in this stem.

PLEOMORPHIC ADENOMA
- Also called benign mixed tumour
- It is the most common tumour of the parotid gland and causes over a third of submandibular tumours

Features

- Presents around middle age
- Slow-growing and asymptomatic
- Solitory
- Painless
- Usually mobile
- Firm single nodular mass

Although pleomorphic adenomas are classified as a benign tumour, they have the capacity toundergo malignant transformation.

Treatment involves removing by superficial parotidectomy or enucleation

Q-73

A 72 year old man presents with intermittent difficulty in swallowing with regurgitation of stale food materials. Lately me he has been having a chronic nocturnal cough. What is the SINGLE most likely diagnosis?

A. **Benign stricture**
B. **Oesophageal carcinoma**
C. **Oesophageal spasm**
D. **Pharyngeal pouch**
E. **Systemic sclerosis**

ANSWER:
Pharyngeal pouch

EXPLANATION:
The stale food material can only point to one diagnosis which is pharyngeal pouch. The remaining options may have regurgitation but none with stale food.

Sometimes, question writers may also give a history of bad breath.

Q-74

A 52 year old diabetic man comes with complaints of severe pain in his anus. The pain started a week back and has gradually increased in severity. The pain is throbbing in nature and is particularly worse when he sits down and right before a bowel movement. On examination, there is a tender palpable mass noted in the perianal region with erythematous changes on the overlying skin. He has a pulse rate of 90 beats/minute and a temperature of 37.5 C. What is the SINGLE most appropriate management?

A. **Incision and drainage**
B. **Oral antibiotics**
C. **Intravenous antibiotics**
D. **Cold pack**
E. **Steroids**

ANSWER:
Incision and drainage

EXPLANATION:
The patient has a perianal abscess. A perianal abscess is always treated with an incision and drainage which should be done immediately to prevent the formation of anal fistula.

One of the common causes of anorectal pain is perianal abscess. Perianal abscesses have a gradual onset, usually with a constant localized perianal pain. Throbbing and severe are good ways to describe a perianal abscess especially if the patient describes the pain as worse when sitting down. Tenderness and swelling is common and occasionally with discharge. Other symptoms include constipation or pain associated with bowel movements.

Perianal abscesses need to be referred as an acute surgical emergency for incision and drainage. Antibiotics may be given after the incision and drainage.

Q-75

A 57 year old man complains of symptoms of vomiting, tiredness, and palpitations. He has lost 8 kg in the last 3 months. On examination, hepatomegaly and ascites is noted. He has a palpable left supraclaviculr mass. Records show that he is blood group A. What is the SINGLE most likely diagnosis given the symptoms and risk factors?

A. Gastric carcinoma
B. Colorectal carcinoma
C. Peptic ulcer disease
D. Atrophic gastritis
E. Krukenberg tumor

ANSWER:
Gastric carcinoma

EXPLANATION:
It is clear that this is gastric carcinoma. The vomiting, tiredness, weight loss are general features of gastric cancer. In addition, the palpitation are a symptom of anaemia. Hepatomegaly and ascites are late features of gastric cancer. The lump at the left supraclavicular region known as Troisier's sign (an enlarged left supraclavicular node – Virchow's node). It is indicative of gastric cancer. People with blood group A are at a higher risk of gastric cancer.

Gastric cancer
Risk factors and Associations
- Increasing age

- H. pylori infection
- blood group A
- gastric adenomatous polyps
- pernicious anaemia
- Smoking
- diet: salty, spicy, nitrates

Presentation
- Nonspecific with dyspepsia, weight loss, vomiting, dysphagia and anaemia.
- The majority of patients present with advanced disease and alarm symptomssuch as weight loss, vomiting, anorexia, abdominal pain and anaemia.
- Signs suggesting incurable disease - eg, epigastric mass, hepatomegaly, jaundice, ascites, Troisier's sign (an enlarged left supraclavicular node - Virchow's node).

Q-76

A 72 year old male isdue for a lower anterior resection of the colon due to colorectal carcinoma. What is the SINGLE most appropriate prophylactic regimen to be given in theatre in his case?

A. Metronidazole
B. Amoxicillin
C. Clarithromycin and amoxicillin
D. Cefuroxime and metronidazole
E. Benzylpenicillin

ANSWER:
Cefuroxime and metronidazole

EXPLANATION:
Colectomies are performed to treat and prevent diseases and conditions that affect the colon and rectum. These diseases are usually cancer of the colon or rectum or both but can also incude inflammatory bowel disease as well as diverticulitis.

Regardless of the type of procedure that is being performed, prophylactic antibiotics are needed for all colectomies. This is due to the colon and rectum being a reservoir for faecal matter and having the potential to cause serious infections. Prophylactic antibiotics are usually administered within 30 minutes of the first incision and are given by the anaesthetist.

There is no hard rule on antibiotic choice for colorectal procedures, however, the antibiotics chosen for antimicrobial prophylaxis should have activity against the anaerobic and aerobic floras of the bowel. Cefuroxime have good coverage of gram positive and negative bacteria and metronidazole works well against anaerobic bacteria.

Antibiotic regiments differ amongst Trusts. Always check your locak antibiotic policy before administering antibiotics.

To summarise, a common prophylactic antibiotics for an anterior resection of the colon is a cephalosporin and metronidazole.

NB: a lower anterior resection is the new term for an anterior resection.

Q-77

A 35 year old day 1 post caesarean section complains of inability to void. She denies dysuria but complains of fullness. She was given an epidural for analgesia. What is the SINGLE most appropriate investigation?

A. **Midstream specimen of urine**
B. **Intravenous urogram (IVU)**
C. **Ultrasound of the kidneys, ureters & bladder**
D. **Serum calcium**
E. **Bladder scan**

ANSWER:
Bladder scan

EXPLANATION:
Bladder scan is the correct answer here.

Women would be catheterised during the C-section. Infection control and continence guidelines specify that newly inserted urinary catheters should be removed within 48 hours to reduce urinary sepsis and restore normal bladder function as quickly as possible. In a routine elective C-section, this would usually be on the same day or the next day. Most catheters can be removed promptly using a trial without catheter (TWOC) procedure.

Postoperative urinary retention occurs due to the effects of the epidural during a C-section. In practice, after taking out the catheter, doctors or nurses would ensure the patient is aware of symptoms of urinary retention such as passing small volumes, hesitancy or having the feeling of a full bladder that is unable to empty.

If postvoid residual volumes on bladder scan (PVRVs) are 300-500 ml and patient unable to void or uncomfortable, or if PVRV > 500 ml, the usual management would be to reinsert catheter. The actual postvoid residual volumes for catheterisation differ amongst hospitals in the UK but are around similar figures.

Q-78

During a routine colonoscopy for colorectal cancer screening, a 64 year old man was found to have grade 3 haemorrhoids. On questioning after the procedure, he says that the haemorrhoids do not cause any pain or rectal bleeding. What is the SINGLE most likely management?

A. **No action required**
B. **Simple analgesia**
C. **Banding**
D. **Sclerotherapy**
E. **Haemorrhoidectomy**

ANSWER:
No action required

EXPLANATION:
A grade 3 haemorrhoidectomy without bleeding or pain does not need to be treated unless they bother the patient.

Remember, no matter how terrible the haemorrhoids look, they do not need to be treated unless they are symptomatic!

HAEMORRHOIDS
Haemorrhoids can be described as excessive amounts of normal endoanal cushions. They are associated with constipation and chronic straining.

Haemorrhoids can be divided into:

- Internal → Originating from the vascular anal cushions
  - Painless, fresh rectal bleeding
- External → Originating from perianal vessels (originate below the dentate line)
  - Pain, itching, and swelling

Internal haemorrhiods can be classified into 4 grades
- Grade I: No prolapse out of anal canal, just prominent blood vessels
- Grade II: Prolapse seen when strains but spontaneously reduces and returns
- Grade III: Prolapse seen when strains requiring manual reduction
- Grade IV: Prolapse seen and cannot be manually reduced

Management
Conservative and medical management
- Digital replacement of prolapsed haemorrhoid
  - Often relieves the pain
- Avoid straining and constipation by using laxatives or bulking agent
- Local anaesthetic creams and ointments

Surgical
- Sclerotherapy
  - Injection of small amount of irritant solution reducing the blood supply to the haemorrhoid eventually decreasing the size of the haemorrhoid over weeks
- Banding

    - Rubber band like material is placed around the neck of the haemorrhoid which constricts the haemorrhoidal vessels which results in shriveling of haemorrhoids
- Stapled haemorrhoid surgery
    - Uses a circular shaped stapling device to remove excess tissue above the haemorrhoids and the remaining tissue is stapled inside the rectum
- Haemorrhoidectomy
    - Excision of haemorrhoids under general anaesthesia

Thrombosed prolapsed internal or external haemorrhoids may be treated conservatively with analgesia and ice packs applied to the area to reduce oedema and inflammation. However, these may require surgery especially if patients present within 72 hours.

Q-79

A 38 year old woman presents with itching around the breast and greenish foul smelling discharge from the nipple. She had a similar episode a year ago. What is the SINGLE most likely diagnosis?

A. Breast abscess
B. Duct ectasia
C. Duct papilloma
D. Fat necrosis
E. Paget's disease of nipple

ANSWER:
Duct ectasia

EXPLANATION:
Duct Ectasia is suggested by a green or brown nipple discharge

The other options in this question do not present with greenish foul smelling discharge from the nipple

Breast abscess –is suggested by a fluctuant lump, hot and tender, acute presentation often in peurperium, chronic after antibiotics

Duct papilloma – is suggested by bleeding from nipple

Fat necrosis is suggested by a firm and solitary localized lump usually with a history of trauma

Paget's disease of nipple – is suggested by breast nipple 'eczema'.

Q-80

A 50 year old woman who was treated for breast cancer 3 years ago now presents with increased thirst and confusion. She has recently become very drowsy. What is the SINGLE most likely metabolic abnormality?

A. **Hypercalcaemia**
B. **Hyperkalaemia**
C. **Hypoglycaemia**
D. **Hyperglycaemia**
E. **Hypocalcaemia**

ANSWER:
Hypercalcaemia

EXPLANATION:
The most common causes of hypercalcaemia are malignancy and primary hyperparathyroidism. In this scenario, breast cancer has metastasis to the bone. Bone metastases are one of most common causes of hypercalcaemia.

This is a hot topic in PLAB and you should be able to associate breast cancer with bone metastases and hypercalcaemia.

Note: if in this question they were to ask about management of hypercalcaemia, intravenous saline would be the correct answer. The first step in management in hypercalcaemia is always rehydration with IV fluids.

Q-81

A 65 year old woman has been losing weight and feels lethargic. Three years aog, she had a right hemicolectomy for cancer of the ascending colon. She looks pale on examination but there were no abnormal findings. What is the SINGLE most appropriate investigation?

A. **CA 125**
B. **CA 15-3**
C. **CA 19-9**
D. **Carcinoembryonic antigen (CEA)**
E. **Alpha-fetoprotein (AFP)**

ANSWER:
Carcinoembryonic antigen (CEA)

EXPLANATION:
Carcinoembryonic antigen (CEA) is especially important to monitor response to treatment and identify relapse in tumours showing raised CEA at diagnosis (e.g. colorectal cancers).

Q-82

A 28 year old woman who is 8 weeks pregnant has central abdominal pain for the last 36 hours. The pain is now colicky. She reports no vaginal bleeding. She has vomited once and has had an episode of loose stools earlier in the day. She has a temperature of 37.9 C. On examination, she looks ill, and has rebound

tenderness in the right iliac fossa. Her urinalysis is negative. Her blood results show:

Haemoglobin 130 g/L
White cell count 14.2 x 10^9/L
CRP 130 mg/L

What is the SINGLE most likely diagnosis?

- **A. Salpingitis**
- **B. Appendicitis**
- **C. Ectopic pregnancy**
- **D. Ovarian torsion**
- **E. Uterine fibroid**

ANSWER:
Appendicitis

EXPLANATION:
The pain that has shifted towards the right iliac fossa and the fact that there is a positive McBurney's sign and loose stools makes the diagnosis of appendicitis more likely. One cannot rule out ectopic pregnancy and so ideally an ultrasound scan would take place to confirm that the pregnancy is in utero. However, the clinical features and the blood results in the above stem clearly show evidence of an acute appendicitis.

Note that appendicitis is usually more difficult to diagnose in pregnancy as the position of the appendix is usually higher as pregnancy progresses and the uterus enlarges. If a woman is 28 weeks pregnant, she may feel the pain at the right central abdomen or right upper quadrant.

In reality, it would be difficult to differentiate an ectopic pregnancy from appendicitis and the likely action in an unwell (but stable) patient is to perform a laparoscopy to identify the cause of the severe abdominal pain. As this stem is pointing more towards the diagnosis of appendicitis, it would be ideal if the general surgeon took this patient to theatre and performed a laparoscopy whilst the gynaecology team is on standby to take over in the event the general surgeons find an ectopic pregnancy.

Q-83

A 63 year old woman with a history of ovarian cancer with bony metastases is admitted after having a fall. A plain X-ray of the right thigh reveals a mid-shaft femur fracture. The fracture was managed by closed reduction and percutaneous stabilisation. On the third day of her admission she complains of worsening colicky abdominal pain. She vomited four times in the last day and still feels nauseous. Her abdomen appears to be distended and is markedly tender. Bowel sounds are not appreciated upon auscultation. What is the SINGLE most appropriate immediate management to relieve this patient's pain?

- **A. Palliative stoma**
- **B. Nasogastric tube**
- **C. Diamorphine**

D. **Laparotomy**
E. **Endoscopic stenting**

ANSWER:
Nasogastric tube

EXPLANATION:
This patient likely has a paralytic ileus which can occur from long periods of immobilisation. The single best way to relieve her pain is to insert a nasogastric tube to empty the stomach of fluid and gas.

The distractor here is the palliative stoma. Advance ovarian cancers can metastasise to the bowels and cause kinks in it leading to symptoms of bloating. If surgery was required, part of the bowel may be removed and a stoma may be created. However, given her symptoms coincide with immobilisation and are rather acute, inserting a nasogastric tube would be a better answer as it would relieve the pain almost immediately.

Morphine and all its analogues would worsen her symptoms. The matter of fact, treatment of paralytic ileus involves reducing opiate analgesia.

Although endoscopic stenting can be used for palliative care, it is long term treatment and, in this case, can be considered once the patient is stable.

Q-84

A 65 year old woman presents to the breast clinic having noticed that she has had a blood stained discharge from the left nipple. She also has dry skin over the left areola which resembles eczema. On examination, a blood stained discharge with dry flaky skin is noted on the left areola and the nipple was ulcerated. What is the SINGLE most appropriate investigation?

A. **Fine needle aspiration cytology**
B. **Magnetic resonance imaging**
C. **Punch biopsy**
D. **Open biopsy**
E. **Stereotactic biopsy**

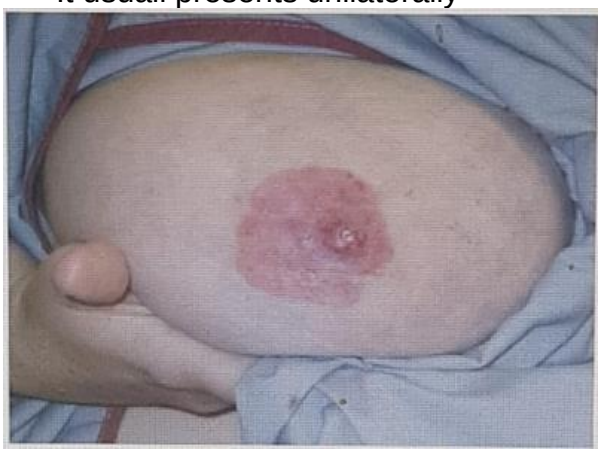
ANSWER:
Punch biopsy

EXPLANATION:
There is suspicion of Paget's disease of the breast/nipple here. These are usually diagnosed by having a simple skin punch biopsy.

PAGET DISEASE OF THE BREAST/NIPPLE
This is an uncommon breast malignancy with a generally better prognosis thaninfiltrating ductal carcinoma.

Presentation
Chronic eczematous change of the nipple with:

- Itching
- Erythema
- Scale formation (may mimic psoriasis)
- Erosions
- Nipple discharge including bleeding
- Inverted nipple
- It usuall presents unilaterally



This image shows the scaly, erythematous, crusty, and thickened plaque on the nipple of Paget Disease of the Breast

Q-85

A 55 year old woman presents with a sore nipple. She has been complaining of a growing rash at her nipple which is itchy. She has clear fluid discharge from her left nipple over the past few months which has recently been a little blood stained. On examination, her left nipple is dry cracked and has scaly skin. Her right nipple appears normal and no lymphadenopathy was seen. What is the SINGLE most likely diagnosis?

A. Paget's disease of the breast
B. Fibroadenosis
C. Breast abscess
D. Duct papilloma
E. Fat necrosis

ANSWER:
Paget's disease of the breast

EXPLANATION:
The signs and symptoms here are consistent with Paget disease of the breast. This is an uncommon breast malignancy. The lesion is pruritic and appears red and scaly often located in the nipple spreading to the areola. The skin appearance can mimic dermatitis like eczema or psoriasis. Discharge may occur which may include blood stained discharge.

Fibroadenosis (or fibrocystic disease) → is the most common cause of breast lumps inwomen of reproductive age. The peak incidence is between 35 and 50 years of age. It isa term used to describe a group of benign conditions that affect the breast. Thesymptoms of fibroadenosis include breast pain (mastalgia or mastodynia), increase inbreast size and lumpiness of the breast (nodularity), particularly just before or during aperiod

Breast abscess → is suggested by a fluctuant lump, hot and tender, acute presentationoften in puerperium, chronic after antibiotics.

Duct papilloma → is suggested by bleeding from nipple.

Fat necrosis → is suggested by a firm and solitary localized lump.

Q-86

A 63 year old female patient presents to Accident & Emergency (A&E) with the complaint of profuse rectal bleeding. She describes having had the urge to defecate but passing a large volume of bright red blood instead. The patient also complains of a 2-day history of left lower abdominal pain which is exacerbated by eating. She last opened her bowels a day ago with loose stools. She feels nauseous but has not vomited. The patient describes her diet as consisting of mainly canned meat products. An abnormal examination reveals localised tenderness in the left lower quadrant with normal bowel sounds. However, there is no guarding or rebound tenderness. A rectal examination shows presence of blood on the examiner's glove. The patient's observations are as follows:

Blood pressure 87/56 mmHg
Heart rate 102 beats/minute
Temperature 38.1 C
Oxygen saturation 99% on room air
Respiratory rate 20 breaths/minute

What is the SINGLE most appropriate management for this patient?

A. **Prescribe oral antibiotics**
B. **Prescribe antispasmodics and nonsteroidal anti-inflammatory drugs (NSAID)**
C. **Provide patient with dietary advice**
D. **Refer for sigmoidoscopy as an outpatient**
E. **Arrange an urgent admission**

ANSWER:
Arrange an urgent admission

EXPLANATION:
This is a tricky question and has two parts. The first part is figuring out what the patient

has. This patient likely has diverticular disease however colorectal cancer needs to be also considered. Some useful definitions for diverticular disease are as follows:

- **A diverticulum** (plural diverticula) is a herniation of the large colon
- **Diverticulosis** is the presence of asymptomatic diverticula
- **Diverticular disease** refers to diverticula that are symptomatic
- **Diverticulitis** is inflammation of diverticula and is almost always symptomatic

Diverticular disease is common in those who have a low dietary fibre intake and in those over the age of 50. It frequently presents with lower abdominal pain which is usually left-sided, bloating, constipation, rectal bleeding or features of inflammation (fever, tachycardia). NICE Clinical Knowledge Summaries (CKS) states that all patients with diverticular disease who are symptomatic and who are haemodynamically unstable require urgent admission. *This patient would need to be admitted as an acute surgical emergency for a suspected haemorrhage from a diverticulum with possible diverticulitis.*

This patient would benefit from intravenous antibiotics instead of oral antibiotics. Intravenous fluids to replace fluid is also essential but not mentioned in the options.

Dietary advice alone is reserved for patients who are symptomatic but who do not meet the criteria for admission.

Antispasmodics have no role in the acute management of diverticulitis. Furthermore, nonsteroidal anti-inflammatory drugs (NSAIDs) should generally be avoided as it may increase the risk of diverticular perforation.

The patient would likey have a CT scan of the abdomen and pelvis to establish the diagnosis and to determine the severity. An urgent colonoscopy to treat the source of bleeding if there is diverticular haemorrhage may also be warranted. A full blood count needs to be taken to ensure the patient is not severely anaemic. If her haemoglobin has dropped significantly, a blood transfusion would be arranged. A C-reactive protein (CRP) would also be important to include a CRP of 50 mg/L or more in this patient would suggest an acute left-sided colonic diverticulitis.

The critical point to remember for this question is that one of the complications of acute diverticulitis is a MASSIVE PER RECTAL bleed which warrants admission.

DIVERTICULITIS
Diverticulitis is the inflammation of a diverticulum.

Clinical features of acute diverticulitis
- Rapid onset left iliac fossa pain and tenderness
- Nausea and vomiting
- Diarrhoea
- Features of infection such as fever, raised WBC and CRP

Investigations
If in the hospital, computed tomography (CT) scan of the abdomen and pelvis is one that is most used to establish the diagnosis, determine the severity, and exclude other differentials.

Treatment
Antibiotics

It is unlikely that the exam would ask you for the antibiotic choice, but for those who would like to know more, keep on reading.

If the patient presents to primary care and if mild, uncomplicated diverticulitis is suspected:

- *Co-amoxiclave for 7 days*
- *Ciprofloxacin and metronidazole if the patient is penicillin allergic*

If the patient has a more significant episode and needs to be managed in hospital

- *Intravenous antibiotics (cefuroxime + metronidazole is a good option)*